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Original article

Estimated Prevalence of Psychiatric Comorbidities in U.S. Adolescents With Depression by Race/Ethnicity, 2011–2012

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A B S T R A C T

Purpose: Comorbid psychiatric conditions in adolescents with depression are a public health concern. However, little is known about the prevalence of comorbidities in separate racial/ethnic groups. This study estimated the national prevalence of comorbidities for black, Hispanic, and white adolescents separately, and compared the prevalence of comorbidities between adolescents with and without depression.

Methods: This secondary analysis used data from the 2011–2012 National Survey of Children's Health, a nationally representative, cross-sectional survey of U.S. youth. We restricted the sample to 12–17 year olds, and obtained unweighted and weighted descriptive statistics. Using weighted probit regression models, we examined differences in prevalence of comorbidities by adolescents with and without depression for each racial/ethnic group.

Results: For black, Hispanic, and white adolescents with depression, the prevalence of comorbidities ranged from 8% to 61% and varied by race/ethnicity (e.g., depression and anxiety were comorbid for 47% of black, 54% of Hispanic, and 59% of white adolescents). For all racial/ethnic groups, adolescents with depression had a higher prevalence of attention deficit hyperactivity disorder than adolescents without depression. However, only black and Hispanic adolescents with depression had a significantly higher prevalence of anxiety and behavior problems than their counterparts without depression. In each racial/ethnic group, the prevalence of autism spectrum disorder did not differ between adolescents with and without depression.

Conclusions: This study detected important differences in the prevalence of comorbid psychiatric conditions by race/ethnicity. Findings highlight the need for targeted interventions for black and Hispanic adolescents with depression that concurrently treat anxiety and behavior problems.

IMPLICATIONS AND CONTRIBUTION

The prevalence of comorbid psychiatric conditions is not uniform across racial/ethnic groups. Findings extend previous research by underscoring the importance of examining racial/ethnic groups separately in studies that investigate comorbid conditions among adolescents with depression.

In the United States, comorbid psychiatric conditions among adolescents with depression are a major public health concern [1,2]. In fact, compared with adolescents without depression, adolescents with depression face two to three times greater risk for anxiety, attention deficit hyperactivity disorder (ADHD), and behavioral disorders [3–5]. Further, 10% of youth with depression also have an autism spectrum disorder [6–9]. Although studies have illuminated a relatively high prevalence of some comorbid conditions in adolescents with depression, compared with adolescents without depression using racially/ethnically diverse samples, little is known about the pattern of comorbid conditions in specific racial/ethnic groups of adolescents with depression. This gap in knowledge is of concern because it may hide

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differences that have important consequences in the development and availability of tailored preventive and treatment programs.

Examination of comorbid conditions in separate racial/ethnic groups of adolescents with depression is important considering that racial/ethnic variations in comorbid disorders may contribute to disparities in mental health burden among minority youth and have corresponding treatment implications [10,11]. Although few studies have focused on depression in specific racial/ethnic groups of adolescents [12–14], one study found more severe depressive symptoms among black and Hispanic youth compared with white youth [15]. This finding suggests that the presentation of depression might not be uniform across racial/ethnic groups.

Identifying the prevalence of comorbid conditions by race/ethnicity can aid in addressing gaps in knowledge and guide future mental health disparities research [16]. Specifically, few studies have examined the prevalence of comorbid conditions by race/ethnicity [7,9,17], although examining differences in prevalence of conditions between groups is an objective of disparities research [16]. This gap leaves an important question unanswered: Do racial/ethnic minorities with depression experience disproportionate rates of psychiatric comorbidities? Addressing this question will both expand current knowledge on the scope of comorbid conditions and potentially detect additional mental health disparities, which is a cross-cutting theme in the objectives set forth by the National Institute of Mental Health [18]. In turn, information on differential prevalence of psychiatric comorbidities can be useful to both nosology and development of targeted interventions for specific racial/ethnic groups [1,17]. Indeed, a report by the Institute of Medicine highlights the need to develop interventions that can address multiple comorbid conditions [19]. Understanding the prevalence of comorbid conditions in specific racial/ethnic groups can help determine groups that may benefit most from interventions targeting multiple mental health conditions.

National prevalence estimates of psychiatric comorbidities by race/ethnicity for adolescents with depression are particularly needed for ADHD, anxiety problems, autism spectrum disorders, and behavioral issues because these conditions are frequently diagnosed during adolescence [5,20,21], and the prevalence of these conditions, in absence of other psychiatric conditions, often vary by race/ethnicity [7,22,23]. We posit that the prevalence of these conditions will be higher in youth with depression compared with youth without depression, and that the pattern of these associations will be higher among black and Hispanic youth compared with white youth. Therefore, this study sought to first estimate the national prevalence of comorbid psychiatric conditions among U.S. adolescents with depression by race/ethnicity, and then compare the prevalence of these conditions between adolescents with and without depression.

Methods

This study used data obtained from the 2011–2012 National Survey of Children's Health (NSCH), which is a nationally representative, cross-sectional survey of youth, 0–17 years old, living in the United States [24,25]. NSCH data were collected using a random-digit dial of landline telephone numbers and augmented with a similar sample of cellphone numbers in 50 states, such as Washington, D.C., and the U.S. Virgin Islands. The NSCH collected data from caregivers living at home together with the children; if multiple children resided in the household, one child was randomly selected as the study target and data were collected for that child. Protocols for data collection were approved by the National Center for Health Statistics at the University of Chicago [26].

The present study restricted the sample to adolescents between the ages 12 and 17 years (N = 30,605). We examined four possible comorbid conditions: ADHD, anxiety problems, autism spectrum disorders, and behavior/conduct problems. These conditions and the presence of depression were measured based on caregivers' responses on two items. Caregivers first provided a *yes/no* response to the question, "Please tell me if a doctor or other health care provider ever told you that [CHILD'S NAME] had the condition, even if (he/she) does not have the condition now." A positive response triggered a follow-up prompt for each condition, which was also a dichotomous *yes/no* question, "Does [CHILD'S NAME] currently have this condition?" We combined caregivers' responses to these items to create a dichotomous variable representing whether the adolescent sample currently had a condition. We also examined demographic characteristics, including gender, age, parental education level, income, primary language spoken at home, and insurance status.

To address the complex sample design, we conducted analyses using Mplus 7.4 [27]. In addition to sampling weights, we included weights attributable to cluster and strata [25], and obtained unweighted and weighted descriptive statistics. We also conducted multivariable probit regression models for each of the three racial/ethnic subgroups (i.e., black, Hispanic, white) to examine differences in the prevalence of conditions by adolescents with and without depression. We used weighted least squares with mean and variance adjustment estimation and specified theta parameterization [27]. Missing data, which were determined to be missing at random, were addressed using the full information method; subsequently, we did not exclude cases with missing data from multivariable models. Based on previous research, we included the following covariates as controls: gender (*male* and *female*), age (*12–14* and *15–17*), and caregiver's highest level of education (*lower than high school, high school graduate*, and *higher than high school*) [4,5,28]. In addition, we conducted sensitivity analyses that included other possible controls such as primary language spoken at home (*English* and *language other than English*), insurance status (*uninsured* and *insured*), and income (i.e., based on federal poverty level; *at or less than 100%, 100%–199%, 200%–299%, 300%–399%,* and *400% or more of the poverty level*). However, including these controls resulted in either a zero cell or a linear dependence.

Results

Our results represent the U.S. population of noninstitutionalized adolescents between the ages 12 and 17 years [24]. Although the majority of the study sample consisted of 69.9% white adolescents, it also included 9.4% black and 11.2% Hispanic adolescents. Subgroup analyses showed that among the sample of black adolescents, prevalence of depression was associated with age, income, and primary language spoken at home (see Table 1). In the sample of white adolescents, prevalence of depression was associated with age, poverty, and caregiver's highest level of education. In the sample of Hispanic adolescents, prevalence of depression was associated only with age. Other demographic characteristics were not associated with prevalence of depression across racial/ethnic groups.

Racial/ethnic differences were detected (1) in the prevalence of psychiatric conditions among adolescents with depression, and (2) in the comparison of the prevalence of psychiatric conditions between adolescents with and without depression (see Table 2). In addition, racial/ethnic differences were