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Factors Associated with Detection and Receipt of Treatment for Adolescents with Depression and Anxiety Disorders

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Abstract

Objective—Anxiety and depression are common among adolescents and are associated with significant morbidity. Few youth are recognized and receive treatment for these disorders. The purpose of this study was to examine the rate of recognition and management among an insured population and the factors associated with evidence of detection among adolescents.

Methods—Structured mental health interviews assessing depression and anxiety diagnoses were completed with a random sample of 581 youth from an integrated healthcare system. Administrative data on medical and pharmacy services were used to examine any evidence of detection by the medical system in the prior 12 months.

Results—Fifty-one youth met criteria for an anxiety or depressive disorder. Twenty-two percent of these youth with a DSM-IV anxiety or depressive disorder had evidence of detection or treatment. Factors associated with detection and treatment included having diagnosis of a depressive disorder (with or without an anxiety disorder), more depressive symptoms, greater functional impairment, a higher number of primary care visits in the prior year, and higher parent-reported externalizing symptoms. On multivariate analysis, having more depressive symptoms and a higher number of primary care visits were significant predictors of detection and receipt of treatment.

Conclusions—The rate of detection and treatment of anxiety and depressive disorders is very low in this age group and suggests a need for increased focus on detection particularly in light of recent evidence suggesting decreases in diagnosis and treatment among youth following the black box warning regarding antidepressant medications.

Keywords

Depression; Anxiety; Adolescents; Health Services

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Introduction

Between 10 and 20% of adolescents have a DSM-IV anxiety or depressive disorder, with higher rates found in older adolescent populations.^{1, 2} Both disorders are associated with significant impairment and decrements in school, family and social functioning^{1, 2} and, therefore, early intervention is important. However, community-based studies have shown most youth with mental health disorders do not receive services.^{3, 4}

One key to receiving treatment is recognition by the medical system. Studies suggest that youth with anxiety and depressive disorders are less likely to be recognized and receive treatment than youth with externalizing disorders.⁴⁻⁶ Other factors that have been associated with increased receipt of mental health services for depression include being White,^{4, 7} having more depressive symptoms and impairments in functioning,^{4, 7} and parental perception of burden and need for services.^{4, 6, 7}

One limitation of prior studies is that they relied on parental report to assess use of services and did not assess actual services used. Prior studies have shown that even when referred, many youth do not receive prescribed treatment.⁸ Access to care may be even more limited currently since all of the prior studies were conducted before the black box warning on antidepressants, which has been shown to be associated with decreased diagnosis and treatment of depression.^{9, 10}

The purpose of this brief report is to examine use of mental health services and factors associated with the recognition and management of anxiety or depression in a population-based sample of adolescents from an insured population.

Research Design and Methods

This study utilized data from the Stress and Asthma Research study which was conducted among youth enrolled in Group Health (GH), an integrated health care system with 25 primary care clinics in Washington State as well as 75 clinics with contracts to care for GH patients. GH enrollees can self-refer or be referred by a provider to the GH-owned mental health clinic system. Analyses describing detection among youth with asthma have already been published¹¹ and the current analysis focuses exclusively on the control sample of youth. Youth were randomly sampled from GH enrollment files from September 2005 through July 2006 and were eligible for the study if they were still enrolled in GH, did not have asthma, spoke English, and were able to answer the survey questions. Figure 1 details the recruitment of the control sample. Of the 1360 families sampled, 1183 were eligible and 596 completed interviews for a final recruitment rate of 50.4%. Permission to review automated data was not obtained for 15 youth, thus, the final sample size for the current study is 581 youth. Informed consent was obtained from both a parent and the youth. Full details of sample recruitment are published elsewhere.^{12, 13}

Interviews were conducted by staff of a survey research group. All interviewers received 12 hours of classroom and hands-on training and additional, project-specific training on the C-DISC. All procedures were approved by the GH Institutional Review Board.

Parent Interview

The parent interview included questions about the child's age, sex and race/ethnicity, parental education and employment, and the child's history of any prior diagnoses or treatment for anxiety or depression. Parents were also asked to complete the Child Behavioral Checklist (CBCL) to assess the child's externalizing and internalizing symptoms.¹⁴

Youth Interview

The youth interview consisted of the depression and anxiety modules of the Diagnostic Interview Schedule for Children NIMH 4.0 (C-DISC), a structured psychiatric interview,¹⁵ as well as depressive and anxiety symptom inventories (the Moods and Feelings Questionnaire¹⁶ and the Anxiety Sensitivity Index¹⁷) and a psychosocial functional impairment scale (the Columbia Impairment Scale¹⁸). Youth were considered to have an anxiety (panic, generalized anxiety, separation anxiety, social phobia, agoraphobia) or depressive (major depression or dysthymia) disorder if they met DSM-IV criteria for at least one of these disorders on the C-DISC in the past month.

Automated Data

Automated data was used to assess mental health diagnoses, treatment received for anxiety and depression, and number of primary care visits. Youth were considered to have recognition of depression or anxiety by the health care system if they had evidence at least one of the following over the 12-month period prior to telephone interview: an ICD-9 code for anxiety or depression, a specialty mental health visit, or treatment with any antidepressant or anti-anxiety medication. Additionally, automated data were used for the Pediatric Chronic Disease Scale (PCDS), an algorithm that classifies children into chronic disease categories by using claims data from prescription fills and has been shown to perform as well as the ICD-9-based Ambulatory Care Groups in predicting subsequent one-year health utilization and health care costs.¹⁹

Statistical Methods

Logistic regression was used to generate response propensity scores (probability of being a respondent) as a function of the following variables: age, gender, RUCA code (defining rural versus urban areas using zip code), being on Medicaid, PCDS, number of primary care visits, number of specialty mental health visits, any prescription for antidepressant or anti-anxiety medication, an ICD-9 diagnosis of depression or anxiety, and GH primary care physician versus network physician. All health utilization variables refer to the past year. In subsequent weighted analyses, individuals with a low probability of responding are given a higher weight in the analysis to represent the larger number of non-respondents with similar characteristics. All analyses and descriptive statistics used weighted data.

Descriptive statistics were used to examine the percent of youth with and without a disorder who had any evidence of detection examining each criteria separately. Subsequently, Fisher's Exact Test for dichotomous variables and independent group t tests for continuous variables were used to compare the characteristics of youth with anxiety and depressive disorders who were detected by the medical system to those who not detected.

In order to summarize the findings and find the set of variables that independently are related to recognition, logistic regression analysis was performed. The dependent variable for this analysis was evidence any recognition or treatment by the health care system (ICD-9 diagnosis, Antidepressant/Anxiety medication prescription, or mental health visit). In addition to age and gender which were included a priori, all variables related to recognition in the bivariate analyses with a p value of 0.10 or smaller were entered into the model as potential predictor variables. Variables that were not statistically significant were removed individually.

Results

Of the 581 youth in the full sample, 50% were female and 82% were White. The mean age was 14 years (range: 11-17 years). Seven percent of youth were receiving Medicaid or Washington

State-based insurance. Fifty-one youth (8.5%) had an anxiety or depressive disorder. Of those with an anxiety or depressive disorder on the C-DISC, 11 (22%) had evidence of detection or treatment of anxiety or depression in the prior year. Seven youth (14%) had an ICD-9 diagnosis of depression or anxiety, five (10%) had received an antidepressant or antianxiety medication in the past year and seven (14%) had at least one outpatient mental health visit. To detect any care obtained outside of the system, parents were interviewed regarding anxiety and depression treatment. Parents reported that five youth (10% of the youth with a disorder) had ever received a diagnosis and that three (6%) had ever received treatment. These parent reports did not result in the identification of additional youth receiving treatment. Thirteen youth did not have evidence of any primary care visits or mental health visits in the prior year, thus, there may not have been an opportunity to make a diagnosis. As a sensitivity analysis, we excluded these youth from the sample. The rate of detection increased to 30% but remained low.

Compared to those with no evidence of detection by the system (Table 1), youth who were recognized were more likely to live in a neighborhood with a higher median household income, had a greater number of primary care visits, had higher scores on the depressive symptom measure (Moods and Feelings Questionnaire), were more likely to meet criteria for major depression with or without anxiety, had more parent-reported externalizing symptoms, and had higher levels of self-reported functional impairment.

In the multivariate model, higher scores on the Moods and Feelings Questionnaire (OR = 1.19, 95% CI = 1.03 – 1.38) and more primary care visits (OR = 2.36, 95% CI = 1.16 – 4.81) were significantly associated with the probability of recognition. Neither age nor gender was statistically significant. Each point increase in the MFQ was associated with a 19% increase in the probability of recognition, while each primary care visit over 1 doubled the probability of detection.

Discussion

The results of this study suggest that detection of depression and anxiety among adolescents is very low. Only 22% of youth with a DSM-IV depression or anxiety disorder on structured clinical interview had been recognized or treated by the health care system. This level of detection and treatment is half the level noted for youth with asthma and comorbid anxiety and/or depression in this same healthcare system,¹¹ and lower than has been seen in self-report studies of use of services in other community settings.^{3, 20}

It is important to note that these recognition rates may be conservative as some youth who did not have a depressive or anxiety disorder diagnosis but had been exposed to a mental health treatment in the previous year may have received appropriate and successful treatment prior to diagnostic interview. Similarly, it is possible that youth who had a diagnosis on the C-DISC may not have seen a provider at the time that they were symptomatic. Even in this context the low detection rate of depression in this population is worrisome. Recent studies suggest a role for both psychotherapy and antidepressants in the treatment of depression,^{21, 22} however, both detection of depression and provision of mental health treatment continue to be low.^{9, 10}

As with prior studies, depression severity seems to be an important predictor of receipt of treatment. It is notable that youth report of depressive symptoms seems to be more strongly correlated with detection than adult report of internalizing symptoms emphasizing the importance of direct interviews with adolescents and not just parents. It also supports the importance of educational initiatives directed at adolescents to help them in recognizing and seeking help for depression. Additionally, youth with more primary care visits were more likely to be detected. In this study, we cannot determine if these increased visits are due to doctors seeing these youth more frequently for their anxiety/depression or the fact that youth with

depression and/or anxiety seek more health care. However, it does suggest the importance of a continued role for primary care doctors in the detection and treatment of anxiety and depressive disorders. Finally, parent-reported externalizing symptoms were also strong predictors of detection which supports prior work^{4, 6, 7} indicating the role of parental perception of burden and distress in seeking treatment.

The main limitation of this study is the small sample size which limits our power to detect factors that may have a weaker, but perhaps still important, effect. It is possible with a larger sample, that more of the factors examined would have been statistically significant. Additionally, the sample was selected from a single insured population which may limit generalizability to other populations. Finally, there is the potential for misclassification of youth who didn't follow through on referral for mental health services or who received school-based services without informing their parents or whom the doctor diagnosed with a mental health problem but didn't use an ICD-9 psychiatric illness code or provide specific treatment. Prior studies have shown that pediatric providers may be more reluctant to code mental health disorders in youth.²³ Strengths of the study were the stability of the health insurance system (fewer than 5% of Group Health patients disenroll per year) and the availability of utilization, pharmacy, and outpatient diagnosis data.

In conclusion, detection of depressive and anxiety disorders among youth continues to be very low. Increased focus is needed on strategies to improve the detection of anxiety and depression, as well as to improve the delivery of effective evidence-based treatments in this age group.

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Figure 1.
Study Recruitment Flow Chart

Table 1

Characteristics of Adolescents who Met DSM-IV Anxiety/Depressive Disorder Criteria who were and were not Recognized and Treated by the Health Care System (N = 51)

Variable	Not Recognized by Chart Review (N = 40)	Recognized by Chart Review (N = 11)	Two Sided Fishers Exact or t test p value
	N (%) or Mean (SD)	N (%) or Mean (SD)	
DEMOGRAPHICS			
Female	12 (31%)	6 (54%)	.17
Age of Adolescent	14.0 (1.9)	14.9 (1.9)	.15
White Parent	26 (65%)	10 (91%)	.14
Highest Education of Parents -At Least Some College	34 (85%)	11 (100%)	.32
Anyone Employed in Household	36 (90%)	11 (100%)	0.56
Single Parent Household	15 (38%)	4 (36%)	1.00
Medicaid/Washington State Insurance	4 (10%)	0 (0%)	0.56
Median Income for Zip Code	47614.1 (16537.2)	60425.9 (17099.3)	.03
CLINICAL VARIABLES			
Pediatric Chronic Disease Score – Median Split (198)			
Low	7 (17%)	5 (45%)	.10
High	33 (82%)	6 (54%)	
Number of Primary care Visits	1.2 (1.2)	2.6 (1.9)	.03
PSYCHOLOGICAL VARIABLES			
Type of Disorder based on C-DISC:			
Anxiety Only	25 (64%)	2 (18%)	.01
Depression Only	12 (31%)	6 (54%)	
Both Anxiety and Depression	2 (5%)	3 (27%)	
Mood Feelings Questionnaire	7.3 (6.5)	14.5 (7.7)	.003
Anxiety Sensitivity Index	17.7 (10.9)	22.1 (17.3)	.30

Variable	Not Recognized by Chart Review (N = 40)	Recognized by Chart Review (N = 11)	Two Sided Fishers Exact or t test p value
	N (%) or Mean (SD)	N (%) or Mean (SD)	
Columbia Impairment Scale	16.4 (9.1)	21.9 (9.8)	.09
Child Behavioral Checklist Externalizing	9.0 (7.7)	15.5 (11.6)	.03
Child Behavioral Checklist Internalizing	8.3 (6.6)	12.2 (8.8)	.10