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Adolescents with Suicidal Ideation: Health Care Use and Functioning

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Abstract

Objective—To improve our understanding of the clinical needs among youth with suicidal ideation (SI), we examined health care utilization patterns, functional impairment and co-morbidity among youth who endorsed SI, compared to a control group of youth without SI.

Method—This study included 99 youth with SI in the past year and 99 matched controls. Participants were 13–17 year old youth who were enrolled in a large integrated care delivery system who had seen a provider at least one time in the past year. The two groups were compared with regard to health care utilization, functional impairment, and co-morbid mental health symptoms, while adjusting for depression severity, lifetime diagnosis of depression or anxiety, and medical co-morbidity.

Results—Youth with SI had a significantly higher mean functional impairment compared to youth without SI, both at baseline (84% versus 60% "definitely impaired") and six-month follow up (57% versus 39% "definitely impaired"). Less than 15% in either group attended a mental health specialty visit in the 12 months before or after baseline, and under 10% received antidepressant or anxiolytic medication. Family-report data suggested that a higher proportion of youth with SI received mental health care from sources outside their healthcare system compared to youth without SI.

Conclusions—The presence of SI is associated with more severe functional impairment, comorbidity, and depression severity. Yet, only a minority of adolescents with SI receive mental health services and clinical detection is low. This study suggests that better screening, recognition, and treatment of SI is needed to address the clinical impairment of youth with SI.

What's New—While most youth with SI were receiving medical ambulatory care visits, a very low percentage received mental health care, despite the fact that the presence of SI was associated with more severe functional impairment and co-morbidity.

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Keywords

adolescent; suicide; utilization; mental health

Almost 17% of high school students report that they have seriously considered attempting suicide in the last year.1 Because of the severity of their depression, youth with a suicide plan have been found to have lower ratings of functioning and increased prevalence of co-morbid mental health disorders than those without SI.2–5 Yet, very little is known about what kind of services and treatment youth with SI receive in the health care system.

This is the first study to examine health care utilization patterns, including medication and services use, in tandem with functional impairment and co-morbidity among an insured population of youth with SI. Primary care providers need to understand whether the presence of SI confers additional clinical complexities beyond those associated with depression. We hypothesized that adolescents endorsing SI would have greater functional impairment and would utilize more healthcare resources than adolescents without SI.

Patients and Methods

The current study utilized a subset of participants from the AdoleSCent Health (ASC) Study, which has been previously described.6–9 Briefly, ASC enrolled 2,291 randomly sampled youth age 13–17 from Group Health (a large non-profit integrated delivery system in the Northwest) to examine the predictors of depression persistence in adolescents. A subset of youth (n=499) including all youth at risk for depression and a matched control sample were invited to participate in a longitudinal interview study. After obtaining parental consent and child assent, information was obtained via telephone on depressive symptoms, functional impairment, and health behaviors at baseline and 6 month follow-up.

SI Analysis Sample

For the purposes of this analysis, all 99 youth who reported SI at baseline were selected as cases, in addition to an age and gender matched subsample of 99 youth without SI. SI was indicated by positive endorsement to one or both items from two different instruments. Respondents were asked “Did you talk seriously about killing yourself in the past year?” as part of the DISC-IV structured interview.18 Sixty-three of the 499 participants answered positively to this dichotomous measure. Respondents also reported the frequency of “thoughts that you would be better off dead or hurting yourself in some way” in the past two weeks as part of the Patient Health Questionnaire 9-item screener.10 Seventy-seven youth reported these thoughts several days or more, for a total of 99 youth with SI (41 youth endorsed both items).

Clinical Follow-Up

For ethical reasons, youth who endorsed SI in the past two to four weeks received a follow-up call from a study clinician to assess the seriousness of the SI. In cases where risk was judged to be moderate or high, the clinician spoke with the parent/guardian to assess current resources and recommend follow-up by a health care provider.

Measures

Administrative Data—Encounter and pharmacy data were used to identify all services provided or paid for by GHC during the year prior to and the year following the baseline interview. Provider type and setting of services were used to classify outpatient visits as occurring in ambulatory care (e.g., family practice, pediatrics), mental health outpatient

(e.g., psychiatry, substance abuse), emergency department, and other settings. ICD-9 codes were used to identify visits coded with a depression or an anxiety diagnosis code. NDC codes were used to classify pharmacy fills as anxiety medications (e.g., benzodiazepines) or antidepressants (e.g., SSRIs).

Family-Reported Healthcare Utilization—Parent reported mental health service utilization outside of the GH system for the 6 months prior to the baseline interviews was obtained by telephone survey. Six months following baseline, youth were asked during telephone interviews whether they had received treatment for depression or anxiety in the past 6 months.

Functioning and Co-morbidity—The 13-item parent-report Columbia Impairment Scale (CIS), with a recommended cutoff score of 16, was used to assess psychosocial functioning at baseline and 6-month follow-up.11

The parent-report Pediatric Symptom Checklist-17 externalizing scale was used as a measure of externalizing problems.12 With a cutpoint of 7, it has a sensitivity of .62 and specificity of .89 for detecting externalizing diagnoses.

Youth completed the 5-item version of the Screen for Child Anxiety Related Emotional Disorders (SCARED) to assess anxiety symptoms.13 Using a cut-off of ≥ 3, the brief SCARED has a sensitivity of 74% and a specificity of 73% for discriminating anxiety disorders.13

The CRAFFT is a 6-item questionnaire that was administered to youth to measure problematic use of drugs and alcohol.14 The name, CRAFFT, is an acronym for key components in the questions: Car, Relax, Alone, Forget, Friends, Trouble. Based on prior literature, a CRAFFT score of ≥2 was used to identify adolescents with substance use problems.14

Covariates—The Patient Health Questionnaire (PHQ-9) is a 9-item screening tool for depression that can be scored to grade symptom severity,15 with high sensitivity (89.5%) and specificity (73%) for the diagnosis of major depression among adolescents.9 Lifetime depression/anxiety diagnosis was obtained at the baseline interview by asking parents whether their child had ever been diagnosed with depression or an anxiety disorder. The pediatric chronic disease score uses administrative pharmacy data to generate a measure of medical co-morbidity. 16

Statistical Analyses

T-tests and chi-square analyses were performed to compare the groups of youth with and without SI on sociodemographic factors. Covariates for all subsequent analyses included depression severity, lifetime diagnosis of depression or anxiety, and pediatric chronic disease score. Using analyses of covariance and Wald's tests, adolescents with and without SI were compared on a number of health care utilization variables, functional impairment and co-morbidity. A GEE (Generalized estimated equation) analysis was conducted to examine functional impairment for the two groups of youth over time.

Results

Respondents with SI had significantly more severe depression, a greater prevalence of lifetime diagnosis of depression or anxiety, and higher scores of pediatric chronic disease (Table 1). In terms of service utilization, none of the differences between the groups were statistically significant (Table 2). The vast majority of the youth had received at least one

ambulatory care visit in the past year; however, utilization of mental health services was low among both groups. Only 13% of youth with SI and 10% of those without SI had received any mental health visits within the system in the prior year, with lower proportions in the following year. Rates of antidepressant prescription fills were very low in both groups. Only a small percentage of youth received an ICD-9 depression diagnosis from any provider.

In terms of family-reported health care utilization, parents of youth with SI reported a significantly higher rate of mental health care outside of GH in the 6 months prior to baseline (12.2%) in comparison to those without SI (2.0%; Wald chi-square = 5.15, $p = .02$). In the 6 months following baseline, the proportion of SI youth reporting receiving treatment for anxiety or depression (10.1%) was significantly higher compared to youth without SI (1.0%; Wald chi-square = 7.80, $p = .005$). Overall mental health care, including mental health specialty care visits within or outside GH or receipt of medication was 26.3% among youth with SI in the year prior to baseline and 16.2% in the following year. These rates did not significantly differ compared to youth without SI, among whom rates of utilization were 21.2% and 12.1%, respectively.

Youth with SI had significantly higher mean functional impairment scores at baseline compared to youth without SI (Table 3). Moreover, mental health co-morbidity, including externalizing problems and substance use symptoms, were significantly different between the two groups. Compared to control youth, youth with SI had twice the rate of meeting the clinical threshold for at least one of the three co-morbid diagnoses (externalizing, anxiety, or substance use).

A GEE analysis including main and interactive effects was conducted to examine functional impairment over time for the two groups, adjusting for the covariates. Youth with SI had significantly more functional impairment at both baseline and follow up. While 84% of youth with SI met the cutoff for “significant impairment” at baseline, only 60% of the youth without SI did. There was also a significant time by group interaction (Wald $\chi^2(1) = 5.35$, $p = .02$) indicating that youth with SI had significantly greater improvement in functioning in the 6 months following baseline compared to controls. Yet, youth with SI were still more impaired at six month follow-up, with 57% meeting the cutoff for “significant impairment,” in contrast to 39% of youth without SI.

Discussion

Our study suggests that, within an integrated care system, youth with SI had similar patterns of healthcare utilization to youth without SI but with comparable depression. While most of the youth were receiving medical ambulatory care visits, few received mental health care, despite the fact that patients in GH have access to mental health services without a referral with only small co-pays.

Our results are similar to a study examining self-reported mental health services among adolescents with SI, which found a 28% utilization rate for psychological counseling.17 Our overall mental health utilization rate was similarly low (26%). Within the GH system, no differences emerged in rates of general healthcare or mental health services on the basis of SI. However, youth with SI were more likely than those without SI to seek care outside the organization’s mental health system.

Some researchers have argued that “to cast ideation in a pathology or deviance framework is to miss the normative aspects of this behavior during the adolescent stage of development.”18 While it may not be unusual to experience some morbid ideation at some point during adolescence, the current results highlight that the presence of SI in teens is indicative of clinically significant functional impairment as well as greater psychiatric co-

morbidity. Functional impairment levels were in the “definitely impaired” range for the majority of youth in both groups of youth at baseline, and six-month follow up levels of impairment were still high for youth with SI, with 57% meeting the definite impairment threshold. Although previous research has established persistent differences in functional impairment for youth who have made a suicide attempt,19 our study shows that impairment is also problematic among youth with SI. Together with other studies suggesting that 29% of individuals with SI go on to make a suicide attempt,20 these data present a compelling case for the importance of identifying SI in youth. Other literature indicates that visits to primary care are associated with detection and receipt of treatment for anxious and depressed youth. 21

In terms of co-morbid symptoms, in contrast to other literature, our study suggests an increased prevalence of psychiatric co-morbidities among youth with SI, including higher levels of externalizing problems and substance use. It is possible that co-morbid problems tend to cluster more proximally in time to SI, thus creating higher current prevalence (as found in the current study), but not necessarily lifetime prevalence (as found in a previous study).4 It is also possible that co-morbidities contribute in some cases to the etiology of SI.

Limitations of the study include that we did not collect data on when the SI started and considerable variability in terms of severity is likely. As a result of our study design, there was a somewhat different timeframe between administrative measures of health care utilization (12 months) and self-reported symptom and healthcare data (6 months). Another limitation is that these data were collected from an insured sample of youth in Washington State, and may not be generalizable to other populations. It is also possible that some mental health treatment occurred in the context of medical care, which was not characterized as such. Finally, data were collected using phone interviews.

Our results suggest that the clinical detection of SI and depression is low. Correspondingly, mental health service utilization of youth with SI appears to be low, even in a health care system that includes the potential for mental health services. Yet, the presence of SI is associated with significant functional impairment and co-morbidity. These results emphasize the importance of clinicians to recognize youth with SI and pursue additional evaluation to detect and treat comorbidity, underlying depression, and functional impairment. In a prior study, we found that screening for core depressive symptoms alone can miss detection of SI. 6 Thus, we suggest that efforts to screen for depression in primary care should include specific questions regarding SI. A positive response to SI might then be a trigger to screen for additional disorders.

Abbreviations

SI	Suicidal ideation
GH	Group Health
PHQ	Patient Health Questionnaire

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Table 1

Sociodemographic Differences between Youth with and without Suicidal Ideation

Variables	SI Present (N = 99)	SI Absent (N = 99)	p-value
Age: Mean (SD)	15.2 (1.3)	15.2 (1.3)	1.00
Gender: Female % (N)	69.7 (69)	69.7 (69)	1.00
Median Income: Mean (SD)	56100 (19828)	56892 (16934)	0.77
Urban % (N)	83.2 (79)	89.8 (88)	0.18
PHQ-9 score: Mean (SD)	12.6 (5.2)	4.4 (4.1)	< 0.0001
Lifetime diagnosis of depression or anxiety % (N)	37.1 (36)	10.2 (10)	< 0.0001
Pediatric Chronic Disease Score: Mean (SD)	509.9 (746.9)	298.8 (460.8)	0.016

Table 2

Health Plan Encounter and Pharmacy Fill Data for Youth with and without Suicidal Ideation

	12 Months Prior to Baseline			12 months following Baseline		
	SI Present (N = 99)	**SI Absent (N = 99)**	**p-value**	**SI Present (N = 99)**	**SI Absent (N = 99)**	**p-value**
Proportion receiving at least one ambulatory care visit	85.9%	79.8%	.35	68.7%	69.7%	1.00
Number of ambulatory care visits - Mean (SD)[a]	2.0 (1.8)	1.8 (1.7)	.32	1.4 (1.4)	1.5 (1.6)	.42
Proportion attending at least 1 emergency department visit	6.1%	4.0%	.75	7.1%	4.0%	.54
Proportion receiving at least one mental health specialty visit	13.1%	10.1%	.66	9.1%	5.1%	.41
Proportion receiving antidepressant or anxiolytic medication	7.1%	9.1%	.60	9.1%	5.1%	.27
Proportion receiving depression diagnosis from a provider	9.1 %	7.1%	.60	4.0 %	7.1%	.35

[a] T-tests were used for these continuous outcomes.

Table 3

Baseline Functional Impairment and Co-Occurring Symptoms for Youth with and without Suicidal Ideation

Variables	SI Present (N = 99)	SI Absent (N = 99)	F-Value (1,195)	p-value
Functional Impairment: Mean (SD) (Baseline)	22.9 (8.2)	10.7 (7.8)	11.02	.001
Externalizing: Mean (SD) Self-Report	4.2 (2.5)	2.1 (1.8)	6.12	.01
Externalizing: Mean (SD) Parent-Report	4.2 (2.9)	2.8 (2.4)	5.00	.03
Anxiety: Mean (SD)	3.1 (2.1)	2.3 (2.0)	2.43	.12
Substance Use Problems: Mean (SD)	1.3 (1.4)	0.6 (1.0)	3.93	.05
% with Any Co-morbid Diagnosis	84.8	39.4	7.55[a]	.006

[a]The Wald statistic was used for this dichotomous outcome.