Adolescents' Assessments of the Helpfulness of Treatment for Major Depression: Results From a National Survey

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Objective: The study investigated perceived helpfulness of counseling or medication in a national sample of adolescents with a major depressive episode.

Methods: Secondary data analysis of the National Survey on Drug Use and Health was conducted. The sample comprised adolescents (ages 12–17) with a past-year major depressive episode who reported receiving either counseling and no medication (N=2,000) or medication and counseling (N=1,300) for depression in the past year. Adolescents who received counseling only evaluated the helpfulness of counseling, and adolescents who received medication and counseling evaluated the helpfulness of medication. Responses were analyzed by using descriptive statistics and ordered logistic regression models.

Results: Among adolescents who received counseling only, 10% reported that counseling was extremely helpful,

22% that it helped a lot, 25% that it helped some, 24% that it helped a little, and 20% that it was not at all helpful. Among adolescents who received medication and counseling, 17% reported that medication was extremely helpful, 30% that it helped a lot, 22% that it helped somewhat, 16% that it helped a little, and 15% that it was not at all helpful. In adjusted models, adolescents with greater parental support and fewer than two delinquent behaviors in the past year were more likely to endorse treatment as helpful.

Conclusions: About 32% to 47% of adolescents in the general population reported that depression treatment was extremely helpful or helped a lot. This is substantially lower than response rates in clinical trials. The reasons for these divergent findings merit further investigation.

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In 2011, two million youths (8.2% of the population ages 12–17) had a major depressive episode during the past year (1). Adolescents experiencing a major depressive episode are at higher risk of suicide, impaired functioning at school and work, and substance abuse and mental disorders in adulthood (2–6). Information on the effectiveness of depression treatment in the general adolescent population is vital for clinicians contemplating initiating treatment for adolescent patients with a major depressive episode and for policy makers evaluating the adolescent mental health care sector.

Unfortunately, little is known regarding effectiveness of treatment for a major depressive episode among adolescents in the general population. Typically, available estimates of treatment effectiveness come from efficacy studies—highly structured, randomized clinical trials conducted in academic settings with highly selected populations. Although the internal validity of efficacy studies is high, the studies' external validity, or generalizability of these findings to the general population or to usual care settings—such as community pediatric or family practice clinics—may be low (7,8). In particular, clinical studies may overestimate the effectiveness of treatment in the general population (9).

To address this knowledge gap, we used data from the National Survey on Drug Use and Health (NSDUH) to investigate assessments of the helpfulness of counseling and medication by adolescents who received treatment for a major depressive episode in the past year. Although assessments of the helpfulness of treatment are not traditional outcome measures, they might be useful, given the lack of data on treatment outcomes for adolescents in the general population. Further, there are advantages associated with examining patient-reported treatment helpfulness (10). First, these selfrated measures allow direct assessment of patients' perspectives on helpfulness, and these perspectives are likely more meaningful to patients (11,12). Second, asking patients about the effectiveness of treatment involves a single, brief, easy-to-understand question, in contrast to clinical measures of depression outcomes, which can involve ten or more

questions. Thus such an approach has a decreased response burden.

Third, the results of such a question are easy to understand and interpret. Fourth, almost all clinical outcome measures in current use focus on a specific disorder, such as major depression, or on closely related disorders, such as major depression and dysthymia. However, mental disorders are often comorbid (13,14)—for example, depressive disorders and anxiety disorders—and although clinical outcome measures focus on just one disorder, patients may take a more integrated approach. For example, when patients are asked about how much they were helped by a prescription medication or by counseling, they may interpret the question as meaning overall mental health improvement rather than improvement in a specific disorder, such as just depression symptoms or just anxiety symptoms.

We know of no studies that investigated adolescents' assessments of the helpfulness of mental health treatment. However, there have been studies of related outcomes, such as satisfaction with treatment, treatment preferences, treatment engagement, dropout, and parent expectancies for treatment. These studies suggest that treatment satisfaction among adolescents is generally high (15,16), especially among whites. Adolescents express a strong preference (2-to-1 ratio) for counseling over medications (15). Adolescents who drop out of mental health treatment or have gaps in receipt of mental health care are more likely to have behavioral problems (17-21). Similarly, children who receive less praise from their parents (22) and experience less cohesive family environments are less engaged in treatment (19,23). Factors associated with lower parent expectancies for child improvement with treatment include higher levels of parent stress and depression and greater severity of the child's symptoms (24).

The NSDUH is ideal for investigating adolescents' assessments of the helpfulness of counseling or medications for a major depressive episode (1). It is nationally representative, includes measures of major depressive episode and substance use disorders from *DSM-IV* (25), collects detailed information on personal and treatment characteristics, and features a large sample that allows precise estimates.

METHODS

Sample

We used cross-sectional data from the NSDUH, which is conducted annually by the Substance Abuse and Mental Health Services Administration (SAMHSA) and is the primary source of information on illicit drug, alcohol, and tobacco use in the United States. Consistent with SAMHSA policy for reporting data from the NSDUH, all sample sizes in the following text and tables have been rounded to the nearest hundred. To increase the statistical power of our analyses, we combined 2006–2010 NSDUH data (N=111,700 adolescents) and focused on adolescents who met *DSM-IV* criteria for a major depressive episode (N=9,100, 8.1% [weighted prevalence]). Major depressive episode among adolescents is assessed by using a questionnaire that is based on the depression module in the National Comorbidity Survey–Adolescents (26,27).

Of the 9,100 adolescents with a major depressive episode, 2,000 (22%) reported receiving counseling but not taking prescribed medication for depression (counseling only), 1,300 (13%) reported receiving counseling and taking prescribed depression medication (counseling and medication), 200 (3%) reported taking prescribed depression medication but not receiving counseling (medication only), and 5,500 (62%) reported receiving no counseling or medication for depression in the past year. Adolescents who received treatment were more likely than those who did not receive treatment to have severe impairment. Among adolescents who received treatment, those who received counseling and medication were most likely to have had significant impairment associated with depression (85%), followed by those who received counseling only (77%) and those who received medication only (75%).

The analytical sample for the analysis of perceived helpfulness of counseling comprised the 2,000 adolescents ages 12-17 with a past-year major depressive episode who reported receiving only counseling for depression in the past year; adolescents who reported receiving both counseling and medication for depression were not included. This exclusion was made in response to a concern that the question about the helpfulness of counseling, which was described in the question as "counseling/treatment," may have led the adolescents to consider the cumulative helpfulness of both counseling and medication. The analytical sample for the analysis of perceived helpfulness of medication consisted of the 1,300 adolescents ages 12-17 with a past-year major depressive episode who reported receiving counseling and taking prescribed depression medication in the past year. Adolescents who reported receiving medication only (N=200) were not included in the analytical sample for assessment of perceived helpfulness of medication to increase the homogeneity of the treatment received.

Among the counseling-only and the medication-andcounseling samples, approximately 200 adolescents had missing data on one of the independent variables. Therefore, four independent variables (past-year major depressive episode, number of specialty mental health visits in the past year, number of religious services attended in the past year, and grades in the last semester or grading period completed) were imputed by using weighted sequential hot-deck imputation (28), with imputation classes based on age, race, and gender.

After the study was described to participants, informed consent was obtained verbally from parents or guardians, and assent was obtained verbally from the adolescents. Written consent was not obtained because the names of respondents are not used in the screening and interview process. Detailed information on the survey methodology is available at the SAMHSA Web site (www.samhsa.gov/data/population-data-nsduh/reports?tab=39).

Measures

Dependent variables. Two measures of perceived helpfulness were analyzed by using separate regressions. To assess the helpfulness of counseling, adolescents with a past-year major depressive episode who reported having seen or talked with a professional about their depression in the past 12 months were asked, "During the past 12 months, how much has treatment or counseling helped you?" Types of doctors and professionals included family doctors or general practitioners, other medical doctors, psychologists, psychiatrists or psychotherapists, social workers, counselors, other mental health professionals, nurses or occupational therapists, religious or spiritual advisors, or other healers (for example, herbalists or chiropractors). Adolescents with a past-year major depressive episode who reported having taken prescription medication for their depression in the past 12 months were asked, "During the past 12 months, how much has this prescription medication helped you?" The response options for both questions were extremely, a lot, some, a little, and not at all.

Independent variables. We identified a set of correlates of perceived helpfulness on the basis of health behavior theory (29), clinical and public policy considerations, and results from the literature (15–23,30,31). These were organized into four domains: sociodemographic characteristics, other individual characteristics, clinical status, and treatment characteristics. Sociodemographic characteristics included age, gender, race-ethnicity, family income, health insurance, and a measure of rural or urban residence. The measure of rural or urban residence the 2000 Census block-level designations of rural or urban, as described previously (1). Education was not included because in an adolescent population it is highly collinear with age.

Other individual characteristics included number of delinguent behaviors, grades in the last semester completed, encouragement from family, and attendance at religious services in the past year. Delinquency was based on a count of seven delinquent behaviors in the past year: took part in a serious fight at school or work, took part in a fight where groups fought groups, carried a handgun, sold illegal drugs, stole or attempted to steal an item worth more than \$50, attacked someone with serious intent to harm that person, or was ever arrested and booked. The delinquent behaviors were then summed and classified as 0, 1, or ≥ 2 . In the NSDUH, religious attendance in the past year is categorized as 0, 1-2, 3-5, 6-24, 25-52, or >52 occasions. Encouragement from family is based on two questions: "During the past 12 months, how often did your parents let you know when you'd done a good job?" and "During the past 12 months, how often did your parents say they were proud of you for something you had done?" Response options are always, sometimes, seldom, and never. If the respondent answered always or sometimes to a question, it was coded as 1; otherwise, it was coded as 0. These scores were then summed for a range of 0 to 2.

Treatment characteristics included whether the depression was associated with severe impairment (a score of \geq 7 on the Sheehan Disability Scale) (32) and whether the individual met criteria for a substance use disorder (alcohol or drug abuse or dependence) in the past year (33).

Treatment characteristics were measured by the number of specialty mental health visits, derived from the youth mental health services utilization module. This was calculated by summing the number of nights spent in a hospital, residential treatment center, or foster care for emotional or behavioral health problems and the number of visits to a day treatment program, mental health clinic, private therapist, or in-home therapist. Visits were summed and coded as 0, 1, 2, 3–6, 7–24, or ≥ 25 .

Data Analysis

All analyses combined NSDUH data from the 2006-2010 analytic files and used SUDAAN to account for the complex sample design (34). Ordered multinomial logistic regression techniques (35) were used, given that each dependent variable comprised five ordinal categories (extremely, a lot, some, a little, and not at all). Statistical significance occurs for ordered logistic regression, similar to logistic regression, when the odds ratio (OR) differs statistically from 1.00. However, in ordered logistic regression, the OR represents the increased (OR>1.00) or decreased (OR<1.00) odds of reporting the next higher level of perceived helpfulness (for example, a little versus some) associated with an increase of one level or category in the independent variable. Analyses were performed for both adjusted and unadjusted models. Consistent with NSDUH methods, the denominator in each F test had degrees of freedom of 900.

RESULTS

Perceived Helpfulness of Counseling

Among the counseling-only sample, 10% reported that counseling was extremely helpful, 22% reported that it helped a lot, 25% reported that it helped some, 24% reported that it helped a little, and 20% reported that it was not at all helpful (Table 1). Consistent with prevalence rates of major depressive episodes, youths receiving counseling were predominantly female (76%). Nineteen percent were ages 12-13, 36% were ages 14-15, and 46% were ages 16-17. Seventeen percent reported a total family income below \$20,000, 34% reported incomes of \$20,000-\$49,999, 18% reported incomes of \$50,000-\$74,999, 13% reported incomes of \$75,000-\$99,999, and 18% reported incomes of \$100,000 or more. Nearly all of the counseling-only sample were covered by health insurance (94%). Eighty-five percent were from urban areas, and 15% were from rural areas. Sixty percent were non-Hispanic white, 15% were non-Hispanic black, 6% were non-Hispanic other, and 18% were Hispanic.

In unadjusted models, adolescents without severe impairment (p=.02), without substance use disorders (p=.02), with better grades (p=.002), with less delinquency (p<.001),

TABLE 1. Characteristics of 2,000 adolescents with a past-year major depressive episode who received counseling but no medication for depression in the past year

Characteristic	Ν	% ^a	SE ^a
Helpfulness of counseling			
Extremely	200	10.0	.88
A lot	400	21.7	1.25
Some	500	24.7	1.30
A little	500	24.0	1.37
Not at all	400	19.6	1.20
Age			
12–13	400	18.7	1.25
14–15	700	35.8	1.44
16–17	900	45.5	1.49
Gender			
Male	500	24.1	1.25
Female	1,500	75.9	1.25
Race-ethnicity			
Non-Hispanic white	1,200	60.4	1.55
Non-Hispanic black	300	14.8	1.05
Non-Hispanic other	200	6.3	1.00
Hispanic	300	18.4	1.27
Family income			
<\$20,000	400	17.3	1.29
\$20,000-\$49,999	700	34.0	1.45
\$50,000-\$74,999	400	17.5	1.17
\$75,000-\$99,999	300	13.1	.98
≥\$100,000	300	18.1	1.16
Health insurance			
Yes	1,900	93.6	.76
No	100	6.4	.76
Residence			
Completely rural	400	14.8	.97
Urban	1,600	85.2	.97
Major depressive episode			
with severe impairment			
Yes	1,500	76.9	1.27
No	500	23.1	1.27
Alcohol or drug use disorder ^b			
Yes	400	20.4	1.20
No	1,600	79.6	1.20
Grade for last completed			
semester or grading period (average)			
A+, A, or A–	400	19.1	1.15
B+, B, or B-	800	41.4	1.58
C+, C, or C-	500	27.2	1.29
D or less	200	8.4	.83
Dropout or other	100	4.0	.67
Delinquent behaviors ^b			
0	900	45.2	1.49
1	500	24.8	1.28
≥2	600	29.9	1.32
Attendance at religious services ^D			
0	700	31.5	1.36
1-2	300	15.2	1.10
5-5	200	10.0	.82
0-24 25 52	300	13.5	1.02
20-02 \\50	200	17 7	1.10 1.10
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TABLE 1,	continued
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Characteristic	N	% ^a	SE ^a
Family encouragement ^{b,c}			
0	500	24.9	1.40
1	300	13.8	1.10
2	1,200	61.3	1.60
Outpatient visits or overnight			
stays for specialty mental			
health services ^b			
0	200	11.7	.92
1	800	38.9	1.55
2	100	6.7	.82
3–6	100	6.6	.71
7–24	300	15.7	1.02
≥25	400	20.4	1.14
School-based counseling ^b			
Yes	900	41.6	1.45
No	1,100	58.4	1.45

^a Weighted

^b Past 12 months

^c Possible scores range from 0 to 2, with 0 indicating seldom or never receiving family encouragement, 1 indicating always or sometimes being praised for doing a good job or being told by their parents that they were proud of something they had done, and 2 indicating always or sometimes being praised for doing a good job and being told by their parents that they were proud of something they had done.

with more frequent religious service attendance (p=.04), and with more family encouragement (p<.001) were more likely to endorse counseling as helpful (Table 2). In adjusted models, lower levels of delinquency (p<.001) and increased parental encouragement (p<.001) were significantly associated with increased likelihood of perceiving counseling as helpful.

Perceived Helpfulness of Prescribed Medication

Among adolescents who reported taking medications and receiving counseling for depression, 17% reported medication was extremely helpful, 30% reported that it helped a lot, 22% reported that it helped some, 16% reported that it helped a little, and 15% reported that it was not at all helpful (Table 3). Eleven percent were ages 12-13, 33% were ages 14-15, and 56% were ages 16-17. Seventy-five percent were female. Fourteen percent reported a total family income of less than \$20,000, 31% reported incomes of \$20,000-\$49,999, 18% reported incomes of \$50,000-\$74,999, 15% reported incomes of \$75,000-\$99,999, and 22% reported incomes of \$100,000 or more. The majority of adolescents who reported taking medications and receiving counseling for depression were covered by health insurance (96%). Seventy-nine percent of youths were from urban areas, and 21% were from rural areas. Eighty percent were non-Hispanic white, 5% were non-Hispanic black, 4% were non-Hispanic other, and 11% were Hispanic.

According to unadjusted models, adolescents who had fewer delinquent behaviors (p<.001), attended a greater number of religious services (p=.002), and had greater family encouragement (p<.001) were significantly more likely to endorse medication as helpful (Table 4). In adjusted models, these variables were all significant, as was depression with TABLE 2. Analysis of predictors of perceived helpfulness of counseling among adolescents with a past-year major depressive episode who received counseling but no medication^a

	Unadjusted				Adjusted					
Characteristic	OR	95% CI	F	df	р	OR	95% CI	F	df	р
Age (reference: 16–17) 12–13 14–15	1.38 1.17	1.01–1.88 .93–1.47	2.21	2, 900	.11	1.37 1.16	.98–1.90 .93–1.46	1.92	2, 900	.15
Male (reference: female) Race-ethnicity (reference: non-Hispanic white)	.91	.69-1.21	.42 1.20	1, 900 3, 900	.52 .31	.98	.74–1.31	.01 2.11	1, 900 3, 900	.91 .10
Non-Hispanic black Non-Hispanic other Hispanic	1.13 .81 1.25	.82–1.54 .52–1.25 .93–1.67				1.35 .90 1.39	.96-1.88 .58-1.39 1.00-1.92			
Family income (reference: ≥\$100,000) <\$20,000 \$20,000-\$49,999 \$50,000-\$74,999 \$75,000-\$99,999	.82 .79 .98 .65	.58–1.14 .59–1.06 .69–1.38 .45 –.94	1.72	4, 900	.14	.81 .83 .94 .59	.56–1.16 .61–1.13 .66–1.33 .40 –.86	2.06	4, 900	.08
Health insurance (reference: none) Rural residence (reference: urban) Major depressive episode with severe impairment (reference: no severe impairment)	.88 1.03 .75	.58–1.33 .81–1.30 .59 –.96	.35 .06 5.23	1, 900 1, 900 1, 900	.55 .81 .022	.82 1.10 .83	.55–1.22 .87–1.39 .64–1.07	.96 .67 2.12	1, 900 1, 900 1, 900	.33 .41 .15
Alcohol or drug use disorder	.73	.57 –.95	5.74	1, 900	.02	1.04	.79–1.36	.07	1, 900	.79
Grade for last completed semester or grading period (average) (reference: dropout or other)			4.38	4, 900	.002			1.47	4, 900	.21
A+, A, or A- B+, B, or B- C+, C, or C- D or less	.96 .83 .65 .44	.55–1.65 .50–1.38 .38–1.12 .24 –.81				.88 .77 .67 .54	.48–1.61 .43–1.36 .36–1.23 .27–1.08			
Delinquent behaviors (reference: ≥2) ^b 0 1	1.74 1.76	1.35–2.25 1.31–2.37	10.14	2, 900	<.001	1.66 1.60	1.26–2.18 1.18–2.17	7.24	2, 900	<.001
Attendance at religious services (reference: 0 services) ^b			2.34	5, 900	.04			1.81	5, 900	.11
1–2 3–5 6–24 25–52 >52	1.00 1.20 1.41 1.38 1.66	.69-1.44 .86-1.67 1.01-1.97 .97-1.95 1.16-2.38				.96 1.15 1.29 1.39 1.55	.65-1.41 .82-1.61 .93-1.79 .98-1.98 1.06-2.26			
Family encouragement (reference: 0) ^{b,c} 1 2	1.29 1.90	.91–1.82 1.48–2.43	13.57	2, 900	<.001	1.30 1.79	.91–1.86 1.38–2.34	9.74	2, 900	<.001
Outpatient visits or overnight stays for specialty mental health services (reference: 0) ^b			1.17	5, 900	.32			1.84	5, 900	.10
1 2 3-6 7-24 >25	.62 .96 1.00 1.03 1.25	.38–1.00 .57–1.61 .76–1.33 .79–1.34 .85–1.84	0.0	4 000	07	.62 .99 .99 1.19 1.35	.3997 .59-1.66 .75-1.32 .89-1.59 .92-1.99	10	4 000	75
School-based counseling (reference: no) ^b	1.00	.81-1.23	.00	1, 900	.97	1.04	.85-1.30	.10	1, 900	./5

^a The analyses reflect counseling received for depression in the past year.

^b Past 12 months

^c Possible scores range from 0 to 2, with 0 indicating seldom or never receiving family encouragement, 1 indicating always or sometimes being praised for doing a good job or being told by their parents that they were proud of something they had done, and 2 indicating always or sometimes being praised for doing a good job and being told by their parents that they were proud of something they had done.

TABLE 3. Characteristics of 1,300 adolescents with a past-year major depressive episode who received medication and counseling for depression in the past year

Characteristic	Ν	% ^a	SE ^a
Helpfulness of medication			
Extremely	200	16.8	1.44
A lot	400	30.1	1.71
Some	300	21.9	1.45
A little	200	16.3	1.33
Not at all	200	14.9	1.26
Age	200	11 7	1 1 1
12-15 14_15	200	11.5 32.8	1.14 1.72
14-15	700	55.8	1.72
Condor	700	55.0	1.00
Male	300	24.8	1.52
Female	1.000	75.2	1.52
Race-ethnicity	,		
Non-Hispanic white	1.000	80.3	1.58
Non-Hispanic black	<100	4.5	.89
Non-Hispanic other	100	4.3	.71
Hispanic	100	10.9	1.24
Family income			
<\$20,000	200	14.3	1.21
\$20,000-\$49,999	400	30.6	1.64
\$50,000-\$74,999	200	17.9	1.39
\$75,000-\$99,999	200	14.9	1.26
≥\$100,000	300	22.3	1.4/
Health insurance	1 700	05.0	74
Yes	1,300	95.9 1 1	./⊥ 71
Decidence	100	7.1	./ 1
Residence	300	20.8	152
Urban	1 000	79.2	1.52
Major depressive episode with	1,000	75.2	1.52
severe impairment			
Yes	1,100	85.4	1.27
No	200	14.6	1.27
Alcohol or drug use disorder ^b			
Yes	400	32.3	1.75
No	900	67.7	1.75
Grade for last completed semester			
or grading period (average)			
A+, A, or A-	300	21.4	1.47
B+, B, or B-	500	41.1	1.80
C+, C, or C-	300	23.4	1.47
D or less	200	12.3	1.16
Dropout or other	<100	1.8	.47
Delinquent behaviors ^b	500	11.0	4.05
0	500	41.6	1.85
1 >2	300 400	20.0 32.4	1.00
Attendence at volicious convices ^b	400	J2.4	1.70
Attendance at religious services	500	33.0	1 67
1_2	200	14 5	1.07
3–5	100	9.3	1,17
6–24	200	14.5	1.22
25–52	200	11.9	1.16
>52	200	16.6	1.51
		СС	ontinued

TABLE 3, co	ntinued
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Characteristic	Ν	% ^a	SE ^a
Family encouragement ^{b,c}			
0	300	22.0	1.49
1	200	11.9	1.25
2	800	66.1	1.77
Outpatient visits or overnight stays for specialty mental health services ^b			
0	500	35.5	1.77
1	200	16.2	1.42
2	<100	3.9	.67
3–6	<100	3.7	.66
7–24	200	10.1	1.01
≥25	400	30.6	1.69
School-based counseling ^b			
Yes	500	35.8	1.70
No	800	64.2	1.70

^a Weighted ^b Past 12 months

^c Possible scores range from 0 to 2, with 0 indicating seldom or never receiving family encouragement, 1 indicating always or sometimes being praised for doing a good job or being told by their parents that they were proud of something they had done, and 2 indicating always or sometimes being praised for doing a good job and being told by their parents that they were proud of something they had done.

severe impairment (p=.04), with adolescents with severe impairment more likely to perceive medications as helpful (OR=1.50) compared with adolescents without severe impairment. The magnitude of the ORs were largest (OR=2.17) for frequency of family encouragement (two or more occasions versus none) and number of delinquent behaviors (OR=1.72; zero versus two or more).

DISCUSSION

To our knowledge, this is the first study to present findings on the perceived helpfulness of counseling and prescribed medication for depression among adolescents with a major depressive episode who received treatment. We found that 32% of adolescents who received only counseling felt that counseling was extremely helpful or helped a lot, and 25% felt that it helped somewhat. About 44% reported that counseling was not at all helpful or helped only a little.

Adolescents who took a prescribed medication and received counseling had somewhat higher assessments of helpfulness, with 47% reporting that their prescription medication was extremely helpful or helped a lot and 22% reporting that their prescription medication helped some. Although there are no standards by which to make normative judgments about these percentages, we were encouraged that more than half of the adolescents felt that counseling or medication was extremely helpful, helped a lot, or helped some. A greater concern, it seems, continues to be that 62% of adolescents with a major depressive episode received no treatment at all.

Although it is difficult to compare studies that use different methods and metrics, it is interesting to compare our results with those from the Treatment for Adolescents with TABLE 4. Analysis of predictors of perceived helpfulness of medication among adolescents with a past-year major depressive episode who received counseling and medication^a

Unadjusted				Adjusted						
Characteristic	OR	95% CI	F	df	р	OR	95% CI	F	df	р
Age (reference: 16–17) 12–13 14–15	.79 .78	.49–1.27 .59–1.02	1.81	2, 900	.16	.87 .80	.53–1.41 .60–1.06	1.22	2, 900	.30
Male (reference: female) Race-ethnicity (reference: non-Hispanic white)	1.04	.78–1.39	.08 1.23	1, 900 3, 900	.78 .30	1.11	.83–1.48	.50 1.02	1, 900 3, 900	.48 .38
Non-Hispanic black Non-Hispanic other Hispanic	.46 1.11 1.00	.20-1.04 .66-1.88 .67-1.47				.47 1.26 1.05	.17–1.25 .69–2.29 .68–1.62			
Family income (reference: ≥\$100,000) <\$20,000 \$20,000-\$49,999 \$50,000-\$74,999 \$75,000-\$99,999	.50 .85 .85 1.01	.3181 .59–1.21 .58–1.26 .68–1.50	2.35	4, 900	.06	.65 1.00 .89 .98	.38–1.11 .67–1.50 .60–1.33 .64–1.50	.87	4, 900	.481
Health insurance (reference: none) Rural residence (reference: urban) Major depressive episode with severe impairment (reference: no severe impairment)	1.00 .74 1.41	.43–2.34 .54–1.00 .94–2.10	.00 3.75 2.82	1, 900 1, 900 1, 900	1.000 .06 .09	.80 .83 1.50	.35–1.82 .61–1.14 1.02–2.23	.28 1.33 4.19	1, 900 1, 900 1, 900	.60 .25 .04
Alcohol or drug use disorder	.90	.68–1.18	.60	1, 900	.44	1.10	.81–1.49	.35	1, 900	.55
Grade for last completed semester or grading period (average) (reference: dropout or other)			1.01	4, 900	.40			.43	4, 900	.78
A+, A, or A– B+, B, or B– C+, C, or C– D or less	1.85 1.80 1.42 1.42	.61–5.57 .61–5.33 .47–4.31 .46–4.35				.98 1.09 .87 1.05	.30-3.20 .34-3.45 .27-2.83 .32-3.46			
Delinquent behaviors (reference: ≥2) ^b 0 1	1.78 1.70	1.33–2.40 1.22–2.38	8.71	2, 900	<.001	1.72 1.67	1.22–2.42 1.14–2.43	5.50	2, 900	.004
Attendance at religious services (reference: 0 services) ^b			3.94	5, 900	.002			3.84	5, 900	.002
1-2 3-4 6-24 25-52 >52	1.96 1.28 1.01 1.39 1.79	1.28-3.00 .70-2.34 .68-1.51 .93-2.09 1.29-2.49				1.95 1.43 .86 1.23 1.66	1.26-3.03 .73-2.80 .57-1.29 .80-1.88 1.15-2.41			
Family encouragement (reference: 0) ^{b,c} 1 2	.95 2.03	.61–1.49 1.46–2.83	13.66	2, 900	<.001	.94 2.17	.59–1.50 1.53–3.06	14.54	2, 900	<.001
Outpatient visits or overnight stays for specialty mental health services (reference: none) ^b			1.04	5, 900	.39			1.26	5, 900	.28
1 2 3-6 7-24 ≥25	.86 1.47 1.38 1.51 1.36	.38-1.93 .72-3.02 .81-2.34 .96-2.37 .86-2.16				.67 1.58 1.23 1.38 1.19	.30-1.49 .77-3.25 .71-2.15 .84-2.26 .72-1.97			
School-based counseling (reference: none) ^b	1.01	.79–1.30	.01	1, 900	.92	1.00	.75–1.35	.00	1, 900	.98

^a The analyses reflect medication received for depression in the past year.

^b Past 12 months

^c Possible scores range from 0 to 2, with 0 indicating seldom or never receiving family encouragement, 1 indicating always or sometimes being praised for doing a good job or being told by their parents that they were proud of something they had done, and 2 indicating always or sometimes being praised for doing a good job and being told by their parents that they were proud of something they had done.

Depression Study (TADS), the largest randomized study of depression treatment among adolescents to date (N=439) (36). In TADS, the clinical response rate among adolescents receiving medication (fluoxetine) and cognitive-behavioral therapy (CBT) was 71%, with response defined as much improved or very much improved on the basis of the Clinical Global Impressions improvement score (37). Clinical response rates were 61% for medication alone and 43% for CBT alone. Thus the percentage of patients receiving medication and counseling who were much improved or very much improved was 24 percentage points higher than the percentage of adolescents in NSDUH who reported that medication was extremely helpful or helped a lot.

To the extent that perceived helpfulness correlates with clinical response, this may indicate that rates of clinical response as measured in randomized clinical trials are higher than actual response rates in the general population. Several factors may be responsible. Randomized clinical trials using evidence-based practices, with treatment as usual as the control condition (rather than placebo or no treatment), typically find that evidence-based practices have a modest advantage (38). Clinical trials of antidepressants often exclude individuals with other mental health comorbidities or with general medical or substance abuse comorbidities, whereas our sample was nationally representative. Rates of adherence might be higher in clinical trials than in usual care settings, leading to greater improvement. The outcomes measured in clinical trials, response and remission, may not be the outcomes considered most meaningful by adolescent patients.

In our study, adolescents with a major depressive episode with severe impairment were more likely than those without severe impairment to report that taking medication was helpful. This is similar to the results from a recent metaanalysis among adults that examined the relative benefits of antidepressants versus placebos across a range of depression severity (39). That study found that the magnitude of benefit of antidepressants compared with placebos increased with depression severity.

Generally, adolescents' assessments of the helpfulness of treatment were not correlated with sociodemographic variables, but they were correlated with several individual characteristics. Individuals with more than one delinquent behavior were more likely to report that treatment was not helpful, as were individuals who did not receive parental encouragement. The associations were highly significant (p < .001) and the magnitude of the effects were moderate to large, with ORs of approximately 1.7-2.0. Notably, the individuals who were least likely to find treatment helpful, those with little parental encouragement and more delinquent behaviors, might be those most in need of care. Given that these associations were significant and of sizable magnitude in both models, we believe that these associations deserve further study. If confirmed, treatment protocols might need to be modified accordingly, either by adapting the treatment content or by increasing treatment intensity for these groups.

The results of the study should be interpreted with several limitations in mind. First, we examined the perceived helpfulness of counseling among adolescents who received counseling only and not among all adolescents who received counseling, irrespective of whether they used medications. We did so because there is some ambiguity in the question related to counseling. In particular, although the question is designed to assess counseling, some adolescents might interpret the question's meaning as including medication therapy. To assess helpfulness of depression medications, however, we included only adolescents who received medications and counseling and excluded adolescents who received only medications. This was done to increase homogeneity in the type of treatment received and because the number of adolescents who received medication only was relatively small (N=200). We believe that restricting the analytical samples in this way increased the internal validity but may have decreased external validity. To reassure ourselves of the external validity of the results, we performed additional analyses of all adolescents who received counseling, irrespective of medication status, and among all adolescents who received medication, irrespective of counseling status, and found similar results (results are available from authors on request). We believe that these additional analyses demonstrate the robustness of our findings.

Second, the questions for assessing the dependent variables have not been cognitively tested and could be biased. For example, a positive framing of the question "How helpful has counseling been for you?" might not elicit the same responses as the statement "Please rate how effective counseling was for you." Third, NSDUH is a cross-sectional survey, and thus the regression relationships should be viewed as correlations and not necessarily as causal relationships. Fourth, to our knowledge, there are no studies that have investigated an association between patients' assessments of helpfulness and more traditional outcomes measures, although one study found a strong link between patient satisfaction and quality of care (40).

CONCLUSIONS

In this study, most adolescents with a major depressive episode received no treatment, but among those who did, over half reported that treatment was extremely helpful, helped a lot, or helped some. Adolescents with less parental support and more delinquent behaviors were less likely to report that treatment was helpful. If these findings are confirmed, treatment protocols might need to be modified or adapted for these groups.

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REFERENCES

- Results From the 2011 National Survey on Drug Use and Health: Mental Health Findings. NSDUH series H-45, DHHS pub no SMA 12-4725. Rockville, Md, Substance Abuse and Mental Health Services Administration, 2012. Available at www.samhsa.gov/data/ NSDUH/2k11MH_FindingsandDetTables/2K11MHFR/ NSDUHmhfr2011.htm
- Gould MS, King R, Greenwald S, et al: Psychopathology associated with suicidal ideation and attempts among children and adolescents. Journal of the American Academy of Child and Adolescent Psychiatry 37:915–923, 1998
- Shaffer D, Gould MS, Fisher P, et al: Psychiatric diagnosis in child and adolescent suicide. Archives of General Psychiatry 53:339–348, 1996
- Costello EJ, Pine DS, Hammen C, et al: Development and natural history of mood disorders. Biological Psychiatry 52:529–542, 2002
- Weissman MM, Wolk S, Goldstein RB, et al: Depressed adolescents grown up. JAMA 281:1707–1713, 1999
- Rohde P, Lewinsohn PM, Klein DN, et al: Key characteristics of major depressive disorder occurring in childhood, adolescence, emerging adulthood, and adulthood. Clinical Psychological Science. 1:41–53, 2013
- 7. Insel TR: Beyond efficacy: the STAR*D trial. American Journal of Psychiatry 163:5–7, 2006
- Kazdin AE: Evidence-based treatment and practice: new opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. American Psychologist 63:146–159, 2008
- 9. Pigott HE, Leventhal AM, Alter GS, et al: Efficacy and effectiveness of antidepressants: current status of research. Psychotherapy and Psychosomatics 79:267–279, 2010
- Bowling A: Just one question: if one question works, why ask several? Journal of Epidemiology and Community Health 59:342–345, 2005
- 11. Tunis SR, Stryer DB, Clancy CM: Practical clinical trials: increasing the value of clinical research for decision making in clinical and health policy. JAMA 290:1624–1632, 2003
- March JS, Silva SG, Compton S, et al: The case for practical clinical trials in psychiatry. American Journal of Psychiatry 162: 836–846, 2005
- Grant BF, Stinson FS, Dawson DA, et al: Prevalence and cooccurrence of substance use disorders and independent mood and anxiety disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Archives of General Psychiatry 61:807–816, 2004
- Kessler RC, Chiu WT, Demler O, et al: Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry 62:617–627, 2005

- Asarnow JR, Jaycox LH, Duan N, et al: Effectiveness of a quality improvement intervention for adolescent depression in primary care clinics: a randomized controlled trial. JAMA 293:311–319, 2005
- Garland AF, Haine RA, Boxmeyer CL: Determinates of youth and parent satisfaction in usual care psychotherapy. Evaluation and Program Planning 30:45–54, 2007
- 17. Baruch G, Vrouva I, Fearon P: A follow-up study of characteristics of young people that dropout and continue psychotherapy: service implications for a clinic in the community. Child and Adolescent Mental Health 14:69–75, 2009
- Burns CD, Cortell R, Wagner BM: Treatment compliance in adolescents after attempted suicide: a 2-year follow-up study. Journal of the American Academy of Child and Adolescent Psychiatry 47: 948–957, 2008
- Johnson E, Mellor D, Brann P: Differences in dropout between diagnoses in child and adolescent mental health services. Clinical Child Psychology and Psychiatry 13:515–530, 2008
- Robbins MS, Liddle HA, Turner CW, et al: Adolescent and parent therapeutic alliances as predictors of dropout in multidimensional family therapy. Journal of Family Psychology 20:108–116, 2006
- Brannan AM, Heflinger CA, Foster EM: The role of caregiver strain and other family variables in determining children's use of mental health services. Journal of Emotional and Behavioral Disorders 11:948–957, 2003
- 22. Fernandez MA, Eyberg SM: Predicting treatment and follow-up attrition in parent-child interaction therapy. Journal of Abnormal Child Psychology 37:431–441, 2009
- 23. Thompson R, Lindsey MA, English DJ, et al: The influence of family environment on mental health need and service use among vulnerable children. Child Welfare 86:57–74, 2007
- Nock MK, Phil M, Kazdin AE: Parent expectancies for child therapy: assessment and relation to participation in treatment. Journal of Child and Family Studies 10:155–180, 2001
- Diagnostic and Statistical Manual of Mental Disorders, 4th ed, Text Revision. Washington, DC, American Psychiatric Association, 2000
- Results From the 2010 National Survey on Drug Use and Health: Mental Health Findings. NSDUH series H-42, DHHS pub no SMA 11-4667. Rockville, Md, Substance Abuse and Mental Health Services Administration, 2012. Available at www.samhsa.gov/data/ nsduh/2k10MH_Findings/2k10MHResults.htm
- National Comorbidity Survey–Adolescents. Boston, Harvard Medical School, 2010. Available at www.hcp.med.harvard.edu/ncs/
- 28. Cox BG: The weighted sequential hot deck imputation procedure. Presented at the Proceedings of the 1980 American Statistical Association, Houston, Aug 11–14, 1980
- 29. Glanz K, Rimer BK, Viswanath K (eds): Health Behavior and Health Education: Theory, Research, and Practice, 4th ed. San Francisco, Jossey-Bass, 2008
- Werner RM, Chang VW: The relationship between measured performance and satisfaction with care among clinically complex patients. Journal of General Internal Medicine 23:1729–1735, 2008
- 31. Garland AF, Aarons GA, Hawley KM, et al: Relationship of youth satisfaction with mental health services and changes in symptoms and functioning. Psychiatric Services 54:1544–1546, 2003
- 32. Leon AC, Olfson M, Portera L, et al: Assessing psychiatric impairment in primary care with the Sheehan Disability Scale. International Journal of Psychiatry in Medicine 27:93–105, 1997
- 33. Appendix B: statistical methods and measurement; in Results From the 2011 National Survey on Drug Use and Health: Mental Health Findings. NSDUH series H-45, DHHS pub no SMA 12-4725. Rockville, Md, Substance Abuse and Mental Health Services Administration, 2012. Available at www.samhsa.gov/data/NSDUH/ 2k11MH_FindingsandDetTables/2K11MHFR/NSDUHmhfr2011.htm
- SUDAAN Language Manual, Release 11.0. Research Triangle Park, NC, Research Triangle Institute, 2012

- 35. Hosmer D, Lemeshow S: Applied Logistic Regression, 2nd ed. New York, Wiley, 2000
- 36. March J, Silva S, Petrycki S, et al: Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents with Depression Study (TADS) randomized controlled trial. JAMA 292:807–820, 2004
- Guy W: ECDEU Assessment Manual for Psychopharmacology, 2nd ed. DHEW pub no 76-388. Washington, DC, US Government Printing Office, 1976
- Weisz JR, Kuppens S, Eckshtain D, et al: Performance of evidencebased youth psychotherapies compared with usual clinical care: a multilevel meta-analysis. JAMA Psychiatry 70:750–761, 2013
- Fournier JC, DeRubeis RJ, Hollon SD, et al: Antidepressant drug effects and depression severity: a patient-level meta-analysis. JAMA 303:47–53, 2010
- Edlund MJ, Young AS, Kung FY, et al: Does satisfaction reflect the technical quality of mental health care? Health Services Research 38:631–645, 2003

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