Predicting Remission From Depression in Youth Receiving Outpatient Medication Management

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ABSTRACT

Objective: To examine 6-month remission rates of adolescents treated for depression in a university-based clinic and examine predictors of eventual remission.

Methods: All patients aged 11–18 years treated in the clinic completed self-report measures assessing depression, suicidal ideation, anxiety, and associated symptoms. Remission was operationalized as a total score of ≤ 4 on the Patient Health Questionnaire-9 (PHQ-9) within 6 months of entering treatment.

Results: Of the 430 patients, (76.74% female, 65.34% Caucasian, mean ± SD age 14.65 ± 1.69 years), 26.74% achieved remission within 6 months. Mean ± SD scores on the PHQ-9 at visit 1 (clinic entry) were 11.97 ± 4.76 for remitters (n = 115) and 15.03 ± 5.21 for non-remitters (n = 315). Predicted odds of remitting decreased as depressive symptom severity at visit 1 increased (OR = 0.941; 95% CI, 0.886 to 1.000; *P* = .051) and as scores on the Concise Associated Symptoms Tracking scale at treatment entry increased (OR = 0.971; 95% CI, 0.948 to 0.995; *P* = .017). As depression severity increased between visits, odds of remitting decreased (OR = 0.873; 95% CI, 0.827 to 0.921; *P* < .0001). Finally, adolescent males were more likely to achieve remission than females within 6 months (OR = 2.257; 95% CI, 1.351 to 3.771; *P* = .002).

Conclusions: This study reports remission rates for depressed youth receiving medication management in a naturalistic outpatient setting. Results confirm that depression severity at treatment initiation and over time is a strong predictor of remission status. Additionally, monitoring associated symptoms via measurement-based care can provide important clinical information to inform treatment decisions.

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Major depression in youth is a significant public health concern. Depression leads to functional impairment in social, educational, and familial domains and is a well-established contributor to suicide.[1] According to data from the Youth Risk Behavior Surveillance system,[2] 15.1% of adolescents aged 12 to 17 years in 2018–2019 had a major depressive episode, and 18.8% of youth aged 14–18 years in 2019 reported suicidal ideation. In recent years, the percentage of youth seeking specialized mental health services (eg, partial hospitalization programs, intensive outpatient programs) has significantly increased for those experiencing depression.[3] The ongoing investigation of adequate treatment for depressed youth is needed.

Effective treatments for pediatric depression have been determined through trials of antidepressant medication, psychotherapy, and a combination of medication and psychotherapy.[4–6] However, these established treatments are still limited and warrant further investigation of factors that influence the treatment outcomes.[7,8] The primary goal for depression treatment is for patients to achieve remission status or no longer meet clinical symptom criteria. Overall, reports of remission rates in youth have been low.[9,10] In the Treatment for Adolescents with Depression Study (TADS),[10] only 37% of youth receiving a combination of fluoxetine plus cognitive-behavioral therapy (CBT) achieved remission at 12 weeks. In the Treatment of Resistant Depression in Adolescents (TORDIA)[9] randomized controlled trial (RCT), youth received either a medication switch (alternate selective serotonin reuptake inhibitor or venlafaxine) or CBT or both. Results from TORDIA indicated that 38.9% of the entire sample of 334 adolescents achieved remission by 24 weeks, and there were no significant group differences in remission rates. The ongoing investigation of the factors that contribute to adolescent remission from depression will inform methods of intervention and subsequently improve treatment outcomes.

Previous research has investigated factors that influence treatment response and remission in youth with depression. According to TADS,[10] depression severity at baseline was the only characteristic that distinguished remitters from non-remitters. In TORDIA,[9] the time to remission was faster and the likelihood of remission was greater for those who had demonstrated a response by week 12. Additionally, remission was higher for youth with lower depression, hopelessness, and self-reported anxiety at baseline. Interestingly, youth who achieved remission began showing a decline in symptoms that was near twice the rate of those who did

Clinical Points

- The treatment of depression in adolescence is of great concern. This naturalistic study is the first to examine predictors of remission in a real-life outpatient psychiatric clinic for adolescents seeking treatment for depression.
- Findings emphasize the importance of measurement-based care in monitoring depression symptoms over the course of adolescents' treatment.

not remit by week 6 of treatment.[9] Past literature has also indicated that recovery from a major depressive episode was significantly more likely for those who were short-term treatment responders and had less severe episodes of depression.[11] As such, it is likely that those who achieve remission demonstrate an earlier response to treatment when compared to those who fail to remit.

Previous research has suggested that adolescent females are more likely to experience depression than males and are likely to have more severe depressive episodes.[12,13] Adult studies have resulted in mixed findings, with some suggesting that females exhibit a greater response to depression treatment when compared to males,[14,15] but other studies have failed to replicate these findings.[16,17] One study by Curry and colleagues[11] found that adolescent girls were more likely to experience recurrence (ie, a new depressive episode after recovery) than boys. However, research on sex differences in achieving remission from depression is limited in the pediatric and adolescent literature. Thus, the investigation of the influence of sex on remission likelihood in depressed youth begs further exploration.

Comorbid anxiety has also been associated with worse outcomes for depression treatment, including greater resistance to treatment, more severe depressive symptoms, and greater risk of recurrence.[18,19] Comorbid anxiety in depressed youth is prevalent, with estimates that nearly 3 in 4 children with depression also had anxiety.[20] Research has revealed that anxiety dimensions manifest distinct behavioral profiles and may result in a variety of treatment responses.[21] Additionally, studies have reported that greater side effects associated with antidepressant medications have been predictive of poorer treatment response and remission.[22,23] The Concise Associated Symptoms Tracking Self-Report Scale (CAST-SR)[24] is a self-report scale that measures the worsening of symptoms associated with the side effects of antidepressants. Research in an adult sample[25] found that the worsening of CAST subscales of irritability, anxiety, insomnia, and panic following antidepressant initiation was associated with lower rates of remission, even after controlling for depression severity at entry. Research on depressed adults in outpatient care has also demonstrated that the CAST subscale of anxiety effectively measures fear responses and agitation/restlessness.[21] Furthermore, the CAST subscales of anxiety, panic, and irritability were significantly correlated with the anxiety dimensions identified in this study (ie, state anxiety, fear, neuroticism, and restlessness/agitation). In sum, these findings suggest that the symptoms measured by the CAST may not only capture side effects from antidepressant medication, but also potentially reveal dynamic anxiety symptoms associated with depression that might influence treatment response.

Literature has indicated that depressive symptom severity, comorbid anxiety symptoms, time to treatment response, side effects associated with antidepressant medication, and suicidality may all play a role in remission.[26] In RCTs, remission is typically determined via clinician interviews. Ideally, this practice would also be utilized in routine clinical care to assess patients' symptoms and track treatment progress; however, conducting a clinical interview at every appointment can be time consuming and impractical. Accordingly, clinicians often rely on global judgment rather than symptom assessment measures. Zimmerman et al[27] demonstrated that self-report measures, such as the Patient Health Questionnaire-9 (PHQ-9), effectively measure symptomatology and remission status. Using self-report questionnaires to measure symptom improvement systematically can provide more accurate monitoring of treatment response and remission rather than relying on subjective judgment alone.[28]

The purpose of the current study was to examine potential factors associated with remission in depressed youth receiving outpatient medication management. First, we aimed to identify the rate of remission for youth seeking outpatient medication management for the treatment of depression. Then, based on current literature, we predicted that sex, severity of depression, anxiety, symptoms associated with the initiation of antidepressants, and suicidality at clinic entry would predict remission. Next, we investigated the change in these clinical symptoms over time and its relationship with remission.

METHODS

Participants

This study used clinical data collected from a specialized outpatient clinic for medication management in depressed youth. The clinic, located in the southwest United States, is managed by child and adolescent psychiatry fellows in their final year of fellowship training. Providers use the evidence-based medication algorithm to treat childhood depression.[29] The clinic adheres to measurement-based care through the routine collection of self-report surveys via VitalSign[6] software to track patients' treatment progress over time. Data were collected from 935 patients aged 11–18 years from June 2018 to November 2021. Inclusion criteria for our study required that patients have (1) a self-reported score of > 5 on the PHQ-9 at the initial visit and (2) a second clinic visit within 6 months. These criteria resulted in a final sample of N = 430 depressed youth. Participants were excluded from completing surveys if they had cognitive or medical conditions that might hinder the validity of self-report measures (eg, intellectual disabilities, psychosis, neurologic disorders). The institutional review board

reviewed the study to ensure that ethical standards were met and waived the need to obtain consent and assent for the analysis and publication of the retrospectively obtained and anonymized data for this study.

Procedures and Measures

Outcome measure. The primary outcome for the current study was remission from depressive symptoms within 6 months of the initial clinic visit. For patients to be considered to achieve remission, they must have achieved a PHQ-9 total score ≤ 4 at any visit within 6 months of entering treatment. The determination of using this cutoff score was guided by previous literature in defining remission from depression using self-report scales.[27] We modeled the probability of remission.

Potential predictor variables. A pool of 7 characteristic variables was selected for analysis as potential predictors of remission. These variables were selected based on previously published findings.[9–11,26] The pool of potential predictors, which was selected a priori, included patient age (years), patient sex (male vs female), depressive symptoms, anxiety symptoms, suicidal ideation, associated medication symptoms, and treatment duration (days).

Participants completed self-report surveys via VitalSign[6] software at each clinic visit. For the current study, we focus on the initial clinic visit (visit 1) and the first follow-up visit within 6 months (visit 2). Depressive symptoms were measured using the PHQ-9,[30] which is a self-report measure that assesses the 9 symptom criteria of major depressive disorder as defined by the *DSM-5*.[31] Patients were asked to rate their experience of each symptom over the past 2 weeks using a 4-point scale ranging from 0 (not at all) to 3 (nearly every day). Example items include "Feeling down, depressed, irritable, or hopeless" and "Thoughts that you would be better off dead, or of hurting yourself in some way." The PHQ-9 ranges from 0 to 27, with higher scores indicating greater depressive symptoms.

The Generalized Anxiety Disorder 7-Item Scale (GAD-7)[32] was used to measure symptoms of anxiety. The GAD-7 is a self-report measure that assesses anxiety symptoms over the past 2 weeks on a scale ranging from 0 (not at all) to 3 (nearly every day). Example items include "Feeling nervous, anxious, or on edge"; "Worrying too much about different things"; and "Trouble relaxing." The GAD-7 ranges from 0 to 21, with higher scores indicating greater symptoms of anxiety. The Concise Health Risk Tracking 14-Item Self-Report (CHRT-SR14),[33] which was used to measure suicidal ideation, is a self-report 14-item scale that assesses factors related to suicide risk over the past week. Items are scored on a 5-point scale ranging from 0 (strongly disagree) to 4 (strongly agree). This measure consists of 3 subscales: propensity (items 1–9), impulsivity (items 10–11), and suicidal thoughts (items 12–14) and has previously been validated in youth.[34] For this study, we focused specifically on the items that make up the suicidal thoughts subscale, as suicidal ideation has been associated with decreased odds in achieving remission from depression.[35] The CHRT-SR14 suicidal thoughts subscale ranges from 0 to 12, with higher scores indicating greater suicidal ideation.

The CAST-SR[24] is a 17-item scale that measures the worsening symptoms after initiating antidepressant medication. The CAST-SR was originally developed to consist of 5 subscales: irritability, anxiety, mania, insomnia, and panic. However, a recent analysis of the psychometric properties of the scale resulted in a 4-factor solution in which mania was not included.[36] The resulting 12 items from the 4-factor solution are scored on a 5-point scale ranging from 0 (strongly disagree) to 5 (strongly agree). This measure consists of 4 subscales: irritability (items 1–5), anxiety (items 6–8), insomnia (items 9–10), and panic (items 11–12).[21] Example items include "I feel very tense and I cannot relax" and "I find people get on my nerves easily." The CAST-SR ranges from 0 to 60, with higher scores indicating greater worsening of symptoms.

Statistical Analysis

Demographic and clinical characteristics for the sample of 430 youth were described using the sample mean and standard deviation for continuous variables and the frequency and percentage for categorical variables. To identify any differences between characteristics of those who remitted (n = 115) and those who did not remit (n = 315), the 2-independent sample *t* test with the Satterthwaite method for unequal variances (continuous variables) and Fisher exact test (categorical variables) were used. Multiple logistic regression, with penalized maximum likelihood estimation along with Firth's bias correction, was implemented to estimate the odds of remission from the set of regressors (predictors). A separate logistic regression model was implemented for the set of regressors at visit 1 (initial clinic visit) and for the set of change score regressors (change over time from visits 1 to 2). Adjusted odds ratios (ORs) along with the 95% confidence interval were reported. An estimated OR > 1 indicated greater odds of remission. Statistical analyses were carried out using SAS software, version 9.4 (SAS Institute, Inc., Cary, NC). The level of significance was set at $\alpha = .05$ (2-tailed).

RESULTS

Participant Characteristics

Of the 430 patients, 76.74% were female and 65.34% were non-Hispanic White, and the mean age of the patients was 14.64 ± 1.68 years. Mean PHQ-9 score at visit 1 (initial clinic visit) was 14.21 ± 5.26, and 26.74% of the 430 youth (n = 115) experienced remission of depressive symptoms within 6 months of entering the clinic. The average time between visit 1 and visit 2 was 50.48 ± 35.06 days (7.21 ± 5.01 weeks). Of the 430 patients, 325 had information regarding their treatment plan completed by the physician as part of the questionnaire. This information indicated that 66.5% (n = 286) were prescribed medication with psychotherapy, and 9.07% (n = 39) were prescribed medication alone; 24.4% (n = 105) were missing such medication-related

Table 1. Sample Characteristics[a]

Variable	Total sample (N = 430)	Remitters (n = 115)	Non-remitters (n = 315)	*P* (effect size)
Age, mean (SD), y	14.65 (1.69)	14.73 (1.80)	14.62 (1.65)	.55 (−0.06)[b]
Ethnicity, n (%)[c]				.52 (0.09)[d]
Hispanic/Latino	147 (34.2)	39 (33.9)	108 (34.3)	
Non-Hispanic/Latino	275 (64.0)	73 (63.5)	202 (64.1)	
Sex, n (%)				< .001 (0.17)[d]
Female	330 (76.7)	75 (65.2)	255 (81.0)	
Male	100 (23.3)	40 (34.8)	60 (19.0)	
Race, n (%)[e]				.26 (0.11)[d]
White	302 (70.2)	82 (71.3)	220 (69.8)	
Black or African American	42 (9.8)	9 (7.8)	33 (10.5)	
Other	37 (8.6)	6 (9.5)	31 (9.8)	
Days between visit 1 and visit 2, mean (SD)	50.48 (35.06)	45.31 (28.92)	52.36 (36.91)	.04 (0.20)[b]
PHQ-9, mean (SD)				
Visit 1	14.21 (5.27)	11.97 (4.76)	15.03 (5.21)	< .001 (0.60)[b]
Visit 2	11.20 (6.27)	6.05 (5.52)	13.08 (5.42)	< .001 (1.29)[b]
GAD-7, mean (SD)				
Visit 1	11.74 (5.36)	9.35 (5.43)	12.61 (5.07)	< .001 (0.63)[b]
Visit 2	10.05 (5.90)	5.97 (5.42)	11.54 (5.35)	< .001 (1.04)[b]
CHRT-SR14 Risk, mean (SD)				
Visit 1	3.66 (3.15)	2.97 (3.06)	3.90 (3.16)	.007 (0.29)[b]
Visit 2	2.67 (2.97)	1.55 (2.47)	3.09 (3.03)	< .001 (0.53)[b]
CAST-SR, mean (SD)				
Visit 1	34.50 (10.94)	29.81 (10.56)	36.21 (10.59)	< .001 (0.61)[b]
Visit 2	32.62 (11.12)	25.55 (11.288)	35.20 (9.88)	< .001 (0.94)[b]

[a]Two-independent sample *t* test with the Satterthwaite method for unequal variances (continuous variables) and Fisher exact test (categorical variables) were used to identify any differences between characteristics of the two groups (remitters vs non-remitters). *P* value (2-tailed) associated with the test of group differences (remitters vs non-remitters) on each characteristic.
[b]Reported effect size is Cohen *d*. Ranges are interpreted as follows: 0.2 = small, 0.5 = medium, and 0.8 = large.
[c]Ethnicity data were missing for 8 patients.
[d]Reported effect size is Cramer *V*. Ranges are interpreted as follows: 0.07 = small, 0.21 = medium, and 0.35 = large.
[e]Race data were missing for 49 patients.
Abbreviations: CAST-SR = Concise Associated Symptoms Tracking Self-Report Scale, CHRT-SR14 Risk = Concise Health Risk Tracking 14-Item Self-Report suicide risk subscale, GAD-7 = Generalized Anxiety Disorder 7-Item Scale, PHQ-9 = Patient Health Questionnaire-9.

data. Additionally, clinic-level medication data indicated that 33.4% of the patients who were seen in the clinic were prescribed sertraline, 32.9% fluoxetine, and 25.1% escitalopram, and the remaining 8.6% were prescribed an alternative antidepressant. Demographic and clinical characteristics of the overall sample and by remission status are shown in Table 1.

Predictors of Remission

Multiple logistic regression was implemented to investigate predictors of remission of depression (Table 2). The multiple logistic regression results (area under the curve [AUC] = 0.726), given fixed values of all other variables in the model, revealed that the predicted odds of remitting were lower as depression severity at visit 1 (clinic entry) increased (OR = 0.941; 95% CI, 0.886 to 1.000; *P* = .051), as symptom endorsement on the CAST at visit 1 increased (OR = 0.971; 95% CI, 0.948 to 0.995; *P* = .017), and as number of days increased since the initial clinic visit (OR = 0.993; 95% CI, 0.985 to 1.000; *P* = .042). Male patients, however, had greater predicted odds of remission within 6 months than female patients (OR = 1.642; 95% CI, 0.980 to 2.753; *P* = .059).

We next examined how change in the predictors (clinical factors) from visit 1 to visit 2 influenced remission status (Table 3). The multiple logistic regression results (AUC = 0.743), given fixed values of all other variables in the model, revealed that the predicted odds of remitting were significantly lower as the change in depression severity increased from visit 1 to visit 2 (OR = 0.873; 95% CI, 0.827 to 0.921; *P* < .0001; Table 3).

DISCUSSION

This study investigated predictors of remission for youth receiving medication management in an outpatient clinic specialized in treating depression. Our results indicate that depressive symptom severity and greater CAST total scores (which combines symptoms of irritability, anxiety, insomnia, and panic) at treatment initiation predicted lower odds of remission within 6 months of entering the clinic. Moreover, as the number of days between visits 1 and 2 increases, the likelihood of remission decreases. When investigating how the change in the predictor variables may influence odds of remission, the only predictor that emerges is an increase in depression severity from visit 1 to visit 2. Finally, males are more likely than females to achieve remission within 6 months.

Our finding that 26.74% of the youth receiving care achieved remission within 6 months is lower than previously reported rates of remission during this period.[9] These findings are more closely aligned with, though still below, previously reported remission rates for depressed youth

Table 2. Multiple Logistic Regression Model for Predictors of Remission at Visit 1[a]

Predictor variables at visit 1	Adjusted odds ratio	95% CI for adjusted odds ratio	*P* value
Patient demographics			
Age, y	0.998	0.871 to 1.144	.980
Sex (male vs female)	1.642	0.980 to 2.753	.059
Patient factors			
PHQ-9 score (depressive symptoms)	0.941	0.886 to 1.000	.051
GAD-7 score (anxiety symptoms)	0.956	0.904 to 1.012	.120
CHRT-SR14 Risk score (suicidal ideation)	0.977	0.901 to 1.060	.578
CAST-SR score (medication symptoms)	0.971	0.948 to 0.995	.017
Length of clinic stay, days	0.993	0.985 to 1.000	.042

[a]Model AUC = 0.726. N = 430.
Abbreviations: AUC = area under the curve, CAST-SR = Concise Associated Symptoms Tracking Self-Report Scale, CHRT-SR14 = Concise Health Risk Tracking 14-Item Self-Report suicide risk subscale, GAD-7 = Generalized Anxiety Disorder 7-Item Scale, PHQ-9 = Patient Health Questionnaire-9.

Table 3. Multiple Logistic Regression Model for Change Scores (Visit 1 to Visit 2) as Predictors of Remission[a]

	Adjusted odds ratio	95% CI for adjusted odds ratio	*P* value
Patient demographics			
Age, y	1.027	0.892 to 1.184	.707
Sex (male vs female)	2.257	1.351 to 3.771	.002
Patient factors			
PHQ-9 change score (depressive symptoms)	0.873	0.827 to 0.921	< .0001
GAD-7 change score (anxiety symptoms)	0.981	0.931 to 1.035	.488
CHRT-SR14 Risk change score (suicidal ideation)	1.051	0.955 to 1.157	.305
CAST-SR change score (medication symptoms)	0.992	0.968 to 1.016	.499
Length of clinic stay, days	0.994	0.986 to 1.001	.083

[a]Change score = visit 2 score minus visit 1 score; model AUC = 0.743. N = 430.
Abbreviations: AUC = area under the curve, CAST-SR = Concise Associated Symptoms Tracking Self-Report Scale, CHRT-SR14 = Concise Health Risk Tracking 14-Item Self-Report suicide risk subscale, GAD-7 = Generalized Anxiety Disorder 7-Item Scale, PHQ-9 = Patient Health Questionnaire-9.

achieved within shorter periods, such as 8 weeks (23%),[37] 12 weeks (37%),[10] and 10 weeks (33%–41%).[38] Notably, our observational study design differs from these previous studies, which were RCTs. These RCTs used clinical interviews and scales to determine remission, while we used a self-report measure. In an observational study, Zimmerman and colleagues[27] found that 30.6% of adult outpatients achieved remission within 16 months, measured via PHQ-9 self-report, and the PHQ-9 indicated a 90.9% specificity for detecting remission when compared to the Hamilton Depression Rating Scale as the gold standard. Another observational study in depressed adult outpatients used the PHQ-9 to assess remission and indicated 16% of the sample achieved remission at 6 months.[35] However, research reporting remission rates in naturalistic samples of depressed youth is sparse, warranting further investigation.

Our basic finding that severity of depressive symptoms at clinic entry predicts the likelihood of remission is in line with existing literature.[9,10,14] Contrary to previous findings, suicidal ideation and symptoms associated with generalized anxiety disorder did not emerge as predictors of remission.[26,39] A possible explanation for the lack of suicidal ideation predicting remission likelihood might be because our sample was from an outpatient setting, and thus patients were not typically in an acute state of crisis. Moreover, few studies have investigated if concurrent suicidal ideation influences remission from depression in youth, with much of the existing literature focusing on adults.[26,35,40]

Our results also indicate that the associated medication symptoms measured by the CAST at clinic entry predict lower odds of remission, but changes in these symptoms from visit 1 (clinic entry) to visit 2 (first follow-up visit within 6 months of visit 1) do not. To our knowledge, no other study has investigated how these associated symptoms at the beginning of treatment may predict outcomes, but instead have focused on change in these symptoms as a predictor.[36] In light of the research suggesting the CAST captures dynamic manifestations of anxiety,[21] our findings suggest it may be a clinically meaningful measure of symptoms associated with a lack of remission from depression, in addition to assessing antidepressant medication side effects.

Finally, we found that males were more likely to achieve remission than females. Interestingly, some previous trials in adults have suggested the opposite (ie, females more likely

to achieve remission than males).[14,15] Adolescent females are more likely to both experience depression and have more severe episodes than adolescent males.[41] As episode severity has been an established predictor of one's likelihood to remit,[10,26] it is possible that these differences are an artifact of females' increased likelihood to experience greater episode severity. With that said, more research is necessary to investigate if these findings replicate in other samples of youth.

The results from the current study should be considered in light of its limitations. First, the survey administered did not obtain data related to patients' current and previous medication when they entered treatment. While we were able to identify the breakdown of medications prescribed for the clinic population as a whole, medication-specific data were not linked to individual patients in the current sample, which, in turn, precluded our examining medication as a potential predictor variable of remission. Additionally, this knowledge would have allowed us to determine if patients were treatment resistant (ie, failed to respond to previous medication and therapies). Given the number of patients missing information about whether they were receiving therapy in addition to medication management, we were unable to evaluate if this may have been a predictor of remission in our sample of youth. However, previous literature suggests that the combination of medication and psychotherapy may increase the likelihood of remission in youth with depression, and thus this effect should be considered in future naturalistic studies.[10,42] Another study limitation is the reliance on self-report measures and lack of data obtained from clinician report. Finally, we did not capture psychosocial and environmental factors such as social and familial support and interpersonal connectedness that have previously shown associations with remission likelihood.[43,44] Despite these limitations, this study provides rates and predictors of remission using a naturalistic sample of youth seeking medication management for depression. Future research should further clarify the clinical utility of the CAST measure as a baseline predictor of remission. Future studies should also consider potential associations of psychosocial factors that contribute to the likelihood of remission from depression in youth.[43,44]

In conclusion, this study identifies predictors of remission in youth receiving treatment for depression in a real-life outpatient psychiatry clinic. Our findings emphasize the importance of routinely utilizing measurement-based care to monitor patients' symptoms over the course of treatment. Findings from this study also reinforce that depression severity at treatment initiation and over time is a strong predictor of remission status. Therefore, clinicians might consider increasing the frequency of follow-up appointments and using more robust treatment for youth entering care with more severe symptoms of depression.

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Editor's Note: We encourage authors to submit papers for consideration as a part of our Focus on Childhood and Adolescent Mental Health section. Please contact Karen D. Wagner, MD, PhD, at kwagner@psychiatrist.com.