A Pilot Study of an Electronic, Adolescent Version of the Quick Inventory of Depressive Symptomatology

Heidi K. Moore, Ph.D.; Carroll W. Hughes, Ph.D.; James C. Mundt, Ph.D.; A. John Rush, M.D.; Laurie Macleod, R.N., C.R.C.C.; Graham J. Emslie, M.D.; Shailesh Jain, M.D., M.P.H.; Dayna S. Geralts, B.S.; Ira H. Bernstein, Ph.D.; Joseph P. Horrigan, M.D.; Madhukar H. Trivedi, M.D.; and John H. Greist, M.D.

Background: Adolescent depression assessments are time-intensive, often requiring separate interviews with an adolescent and a parent/informant. In adults, a self-rated, interactive voice response (IVR) version of the Quick Inventory of Depressive Symptomatology (QIDS-IVR) has been shown to be reliable, valid, and sensitive to change. An adolescent version of the QIDS (QIDS-A-IVR) was created using speaker-independent voice recognition technology. An informant version, QIDS-P-IVR, collects ratings from parents or other knowledgeable adults.

Method: The study included 27 adolescents ranging from 12 to 17 years of age, 48% of whom were female. During a single office visit, adolescents completed the QIDS-A-IVR and parents completed the QIDS-P-IVR. A clinician completed the clinician-rated adult version of the QIDS separately for adolescents (QIDS-C-A) and parents (QIDS-C-P) and the Children's Depression Rating Scale-Revised (CDRS-R). The study was conducted from October 2005 to April 2006.

Results: Cronbach α of the QIDS-A-IVR was .85. The QIDS-A-IVR correlated significantly with the QIDS-C-A ($r = 0.95$) and the CDRS-R ($r = 0.76$), both $p < .01$. Conversely, the correlations of the QIDS-A-IVR with the QIDS-P-IVR and the QIDS-C-P were small and nonsignificant. The QIDS-A-IVR required adolescents a mean of 6 minutes and 31 seconds to complete (SD = 41 seconds). The voice recognition technology correctly identified the adolescents' spoken words in 92% of the 483 spoken responses. The system recognized a response from all adolescents on all items.

Conclusions: This study supports the reliability and validity of the QIDS-A-IVR as an adolescent depression measure. The QIDS-A-IVR may provide clinicians and researchers with a sound, technology-based method of assessing adolescent depression. Future research is needed on the informational value of parent ratings of adolescent depression.

(J Clin Psychiatry 2007;68:1436–1440)

Received Dec. 28, 2006; accepted March 27, 2007. *From Healthcare Technology Systems, Madison, Wis. (Drs. Moore, Mundt, and Greist and Ms. Geralts); the Department of Psychiatry, University of Texas Southwestern Medical Center, Dallas (Drs. Hughes, Rush, Emslie, and Trivedi and Ms. Macleod); the Department of Psychiatry, University of Texas Health Science Center, San Antonio (Dr. Jain); the Department of Psychology, University of Texas at Arlington (Dr. Bernstein); and GlaxoSmithKline, Research Triangle Park, N.C. (Dr. Horrigan).*

Support for this research was provided by GlaxoSmithKline, Healthcare Technology Systems, and a grant from the National Institute of Mental Health (R01 MH-68851).

Financial disclosure appears at the end of the article.

Corresponding author and reprints: John H. Greist, M.D., Healthcare Technology Systems, Inc., 7617 Mineral Point Rd., Ste. 300, Madison, WI 53717 (e-mail: jgreist@healthtechsys.com).

Measuring depression severity in adolescents can assist several important clinical tasks including screening, gauging treatment efficacy, and determining symptom remission. The most widely used adolescent depression instrument, the Children's Depression Rating Scale-Revised[1] (CDRS-R), requires a clinical interview with both the adolescent and an adult informant. Although research has shown little agreement between adolescents' and informants' ratings of depression symptoms,[2,3] administrators are trained to "synthesize" these 2 sources of information when determining a final rating. The CDRS-R includes constructs outside the DSM-IV-TR[4] criteria for depression, which may obscure results when measuring response to treatment or remission of symptoms. Additionally, several items require direct patient observation and subjective interpretation of adolescent behaviors. This requirement, in addition to the necessity for 2 separate interviews, makes CDRS-R administration burdensome, costly, and unrealistic for many settings.[5]

Self-reported measures of symptoms enable the rapid assessment of patient status in a number of settings, a benefit for both clinical practice and epidemiologic research. Adolescent depression assessments may be of particular importance as research suggests that parents may not identify depression in their children,[6] and a reliable, valid self-report measure would aid the development and evaluation of more effective treatments. The Quick Inventory of Depressive Symptomatology (QIDS)[7] measures depression

severity on the basis of DSM-IV-TR criteria for a major depressive episode. Patients can complete the self-reported QIDS in about 10 minutes, and an electronic version enables remote, efficient data collection and management. In adults, a self-rated, interactive voice response (IVR) version of the QIDS has been shown to be reliable, valid, and sensitive to change.[8] Given adolescents' affinity for technologies such as cell phones and gaming devices, they may find technology-based depression assessments more engaging than traditional paper-and-pencil instruments. This study examined psychometric properties of an electronic, speech-enabled version of the QIDS adapted specifically for adolescents.

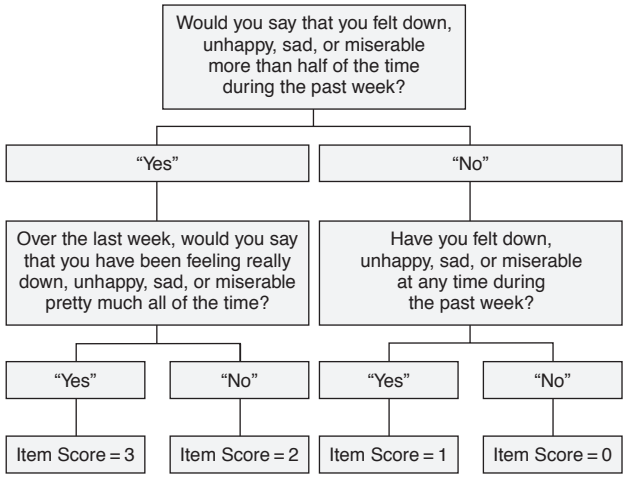
METHOD

Instrument Development

Given that the original QIDS assessment was developed for adults, a modified version needed to be created to facilitate administration to adolescents. The goals of the modifications included creating developmentally appropriate and easily comprehended wording, accounting for DSM-IV-TR differences in depression symptom manifestations between adults and adolescents, and leveraging technology to increase the appeal to adolescents while maintaining reliability. An expert panel comprising child and adolescent psychologists (H.K.M. and C.W.H.) and psychiatrists (G.J.E., S.J., and J.H.G.), a human factors psychologist (J.C.M.), a psychiatric nurse/clinical interviewer (L.M.), and the original scale author (A.J.R.) systematically reviewed the QIDS items. Minor wording changes were made to increase comprehension, resulting in a Flesch-Kincaid readability grade level of 5. For example, the phrase "focus your attention" was changed to "pay attention." Other wording changes replaced words generally not found in the adolescent vernacular. For example, the word "blue" was replaced with "unhappy." Additionally, an irritability item was added to reflect the DSM-IV-TR diagnostic criteria of disturbed mood in children presenting as either sadness or irritability. This additional item resulted in a 17-item QIDS-Adolescent version (QIDS-A) assessment. Separate electronic versions were created to collect information from both adolescents (QIDS-A-IVR) and adult informants (QIDS-P-IVR). As with the original QIDS, these assessments yield 9 domain scores (each scored on a 0–3 scale) reflecting DSM-IV-TR criteria for major depression, which sum to produce a total score.

The QIDS-A-IVR modifications also included several design features intended to increase the reliability of the assessment. First, the order of the items was modified to present adolescents with questions they could answer more easily at the beginning of the assessment (e.g., diminished interest), progressing to more difficult or sensitive items in the latter portion (e.g., suicide). Additionally, the response burden within each of the QIDS-A-IVR items was leveled so that all responses contained the same number of follow-up questions, regardless of the reported symptom severity. This feature discouraged biased or patterned responding that could be used as a method to complete the assessment more quickly. The QIDS-A-IVR also collected responses from adolescents using speaker-independent voice recognition, enabling responses to be spoken rather than entered via pressing a telephone key. This feature was designed to increase user acceptance of the QIDS-A-IVR among adolescents, given the widespread use of cell phones. The speech-enabling technology permitted spoken responses, including "yes," "no," and whole numbers. Touch-tone data entry also was supported as a back-up method to ensure that data would be captured for all items, even in the event of speech recognition problems.

Figure 1. Structure of Sad Mood Assessment in the Quick Inventory of Depressive Symptomatology-Adolescent-Interactive Voice Response Version[a]



[a]Printed with permission from Healthcare Technology Systems, Inc.

Figure 1 shows the structure of the sad mood assessment in the QIDS-A-IVR. All respondents heard an initial question to determine whether their sad mood was at a higher or lower level of severity. Here, a "Yes" response indicated higher severity while a "No" response indicated lower severity. Responses to this initial question determined the administration of the appropriate follow-up question that measured the exact sad mood severity level and determined the sad mood item score. The QIDS-A-IVR contained a "back" feature that enabled respondents to back up to previous questions if they believed they responded erroneously. As shown in Figure 1, respondents received the same number of sad mood questions, regardless of their answer to the initial question.

Participants

The study procedure and materials were approved by the Institutional Review Board at the University of Texas

Southwestern Medical Center. Twenty-seven adolescents aged 12 through 17 years were recruited for the QIDS-A-IVR pilot study from an ongoing study evaluating depression measures in various populations at the University of Texas Southwestern Medical Center at Dallas. Criteria for study inclusion were fluency in English, ability to operate a telephone, and the willingness of a parent or guardian to participate in the study. Adolescents were paid $10.00 for their participation in the pilot study. The study was conducted from October 2005 to April 2006.

Measures

Quick Inventory of Depressive Symptomatology. Two versions of the QIDS were administered to both the adolescents and their parents. First, interactive electronic versions developed for this study obtained independent symptom ratings from adolescents (QIDS-A-IVR) and parents (QIDS-P-IVR). Second, the original 16-item adult version was administered in separate interviews by a clinician to adolescents (QIDS-C-A) and adult informants (QIDS-C-P). Support for the reliability and validity of the clinician-rated version of the QIDS has been previously published.[5] The items from each of the 4 QIDS assessments were scored to produce 9 domain scores, each ranging from 0 to 3 and summed to yield a total QIDS score ranging from 0 to 27. Higher scores indicate more severe depression.

Children's Depression Rating Scale-Revised. The CDRS-R was completed by a clinician after separate interviews with the adolescent and the parent. Following the interviews, the clinician recorded the CDRS-R on the basis of a synthesis of the information obtained from both interviews and was intended to be the best description of the adolescent's clinical state. The CDRS-R contains 17 items that use a scale ranging from either 1 to 5 or 1 to 7. The item scores were summed to produce raw scores ranging from 17 to 113; higher scores suggest greater depression severity.

Procedure

After the parent or guardian completed the informed consent and the adolescent provided assent, the CDRS-R and the QIDS-C-A were completed in a counterbalanced order, followed by the QIDS-C-P. For the CDRS-R administration, adolescents were interviewed before the parents were interviewed. The IVR assessment was completed in a counterbalanced order using a telephone in a private area of the clinic. All assessments were completed during a single office visit.

RESULTS

The study included 27 pairs of adolescents and adult informants. Adolescents ranged in age from 12 to 17 years, with a mean age of 14.07 years (SD = 1.30 years).

Table 1. Means and Standard Deviations on the Depression Instruments (N = 27)

Respondent	Instrument	Mean	SD
Adolescent	QIDS-A-IVR	9.56	6.69
Adolescent	QIDS-C-A	8.67	5.97
Parent	QIDS-P-IVR	6.59*	3.60
Parent	QIDS-C-P	8.81	4.16
Both	CDRS-R	48.15	15.45

*Significantly different from QIDS-C-P, $t = -3.16$, $df = 26$, $p < .01$.
Abbreviations: CDRS-R = Children's Depression Rating Scale-Revised, QIDS=Quick Inventory of Depressive Symptomatology, QIDS-A-IVR = QIDS-adolescent-interactive voice response version, QIDS-C-A = QIDS-clinician administered to adolescent, QIDS-C-P = QIDS-clinician administered to parent/informant, QIDS-P-IVR = QIDS-parent-interactive voice response version.

About half of the sample (N = 13, 48%) was female. Adolescents' DSM-IV diagnoses were identified through existing medical charts. Over half of the adolescents (N = 15, 56%) had current diagnoses of major depressive disorder. An additional participant had a diagnosis of dysthymia, and 4 adolescents were diagnosed with depressive disorder not otherwise specified. Other diagnoses included attention-deficit/hyperactivity disorder (N = 15), oppositional defiant disorder (N = 4), and mood disorder not otherwise specified (N = 4). The adult informants were a mean of 44 years in age, ranging from 33 to 56 years. Eighty-five percent of the adults (N = 23) were women, and 89% (N = 24) reported being the child's parent. Other relationships to the adolescent were stepparent (N = 1) and guardian (N = 2). The mean length for completion of the QIDS-A-IVR was 6 minutes and 31 seconds (SD = 41 seconds). The mean length for completion of the QIDS-P-IVR was 8 minutes and 8 seconds (SD = 1 minute and 47 seconds).

Table 1 presents the means and standard deviations on the depression measures. Using a p value of .01, corrected for possible type I error inflation, a significant mean difference was found between the QIDS-P-IVR and the QIDS-C-P, with scores on the QIDS-P-IVR significantly lower than scores on the QIDS-C-P. No other significant differences emerged for the QIDS-based assessments.

Table 2 presents the α coefficients and correlation coefficients for the depression measures. Using a p value of .01, the QIDS-A-IVR correlated significantly and positively with other depression instruments including QIDS-C-A and the CDRS-R. Cronbach α for the QIDS-P-IVR was .65. The QIDS-P-IVR showed low correlations with the other depression instruments, except the QIDS-C-P. All QIDS measures, except the QIDS-P-IVR, correlated positively and significantly with the CDRS-R.

In addition to showing good overall correlations with the other adolescent QIDS assessments, all QIDS-A-IVR domain scores, with the exception of Suicide, contributed significantly to the total score. The low item-to-total correlation for the Suicide domain may be due to the low incidence of reported suicidal ideation in the current study.

Table 2. Correlations and α Coefficients on the Depression Instruments[a]

Instrument	QIDS-A-IVR	QIDS-C-A	QIDS-P-IVR	QIDS-C-P	CDRS-R
QIDS-A-IVR	.85				
QIDS-C-A	0.95*	.84			
QIDS-P-IVR	0.06	0.08	.65		
QIDS-C-P	0.35	0.35	0.57*	.59	
CDRS-R	0.76*	0.79*	0.21	0.68*	.88

[a]Values on the diagonal are α coefficients.
*p < .01.
Abbreviations: CDRS-R = Children's Depression Rating Scale-Revised, QIDS = Quick Inventory of Depressive Symptomatology, QIDS-A-IVR = QIDS-adolescent-interactive voice response version, QIDS-C-A = QIDS-clinician administered to adolescent, QIDS-C-P = QIDS-clinician administered to parent/informant, QIDS-P-IVR = QIDS-parent-interactive voice response version.

Table 3. Means, Standard Deviations, and Item-Total Correlations for Domain Scores on QIDS-A-IVR and QIDS-P-IVR

	QIDS-A-IVR			QIDS-P-IVR		
Domain	Mean	SD	r_{it}[a]	Mean	SD	r_{it}[a]
Sleep	1.74	1.06	0.57	1.70	0.95	0.19
Mood	1.41	1.12	0.81	1.07	0.87	0.69
Appetite/weight	1.07	1.21	0.66	0.52	0.75	0.31
Concentration	1.11	1.19	0.58	0.74	0.71	0.83
Outlook	1.04	1.19	0.86	0.85	0.95	0.68
Suicide	0.26	0.76	0.40	0.22	0.42	0.47
Psychomotor	1.19	1.24	0.74	0.74	0.90	0.62
Interest	0.67	1.14	0.52	0.37	0.74	0.46
Energy	1.07*	1.04	0.83	0.37	0.49	0.52

[a]r_{it} = Correlation between item and total score.
*Significantly different from QIDS-P-IVR, t = 3.22, df = 26, p < .01.
Abbreviations: QIDS = Quick Inventory of Depressive Symptomatology, QIDS-A-IVR = QIDS-adolescent-interactive voice response version, QIDS-P-IVR = QIDS-parent-interactive voice response version.

In addition to the item-to-total correlations, Table 3 shows the mean and standard deviations by domain score for each of the adolescent QIDS assessments. Paired sample t tests showed a significant difference between adolescents' and parents' ratings on the Energy domain, with adolescents reporting greater severity or more energy disturbances than parents. No other significant differences on the QIDS domains were found.

The QIDS-A-IVR responses also were examined to measure the success of the speaker-independent voice recognition technology to accurately identify the ratings from adolescents. The voice recognition engine used in this study correctly identified the adolescents' spoken words in 92% of the 483 spoken responses. Of the remaining unrecognized responses, 2% were for yes responses, 5% for no responses, and 1% for whole number responses. Two adolescents were asked to use the keypad for 1 question each, but both subsequently finished the assessment using speech input. The system was able to recognize a response from all adolescents on all items.

Upon completing the IVR assessments, adolescents and parents provided feedback about the QIDS-A-IVR and QIDS-P-IVR, respectively, using a standard sequence of questions presented identically in each assessment. The IVR-gathered feedback asked respondents to rate the system's ease of use and the ability of the assessment to capture clinically relevant information. Feedback from both adolescents and parents was positive. Among the 23 adolescents completing the feedback portion, 87% (N = 20) reported that the system was easy to use, 96% (N = 22) that the assessment was about the right length, and 78% (N = 18) that the questions enabled them to describe their feelings. All of the 25 parents (100%) who completed the feedback portion reported that the system was easy to use and about the right length; 84% (N = 21) of the parents agreed that the questions enabled them to describe the adolescents' feelings. Although adolescents did not make any suggestions about additional questions to add to the assessment, parents suggested adding questions about school, family, aggression, sleep, and home responsibilities.

DISCUSSION

The results from this pilot study support the reliability and validity of the QIDS-A-IVR as a depression severity assessment for adolescents. The QIDS-A-IVR showed good internal consistency reliability and strong positive correlations with other established outcome measures of depression. The high correlation between the QIDS-A-IVR and the adult QIDS-C-A suggests that, for depression, adolescents' self-reports of symptom severity reflect the same information obtained via clinician interviews. In settings where a clinical interview may be impractical or cost prohibitive, adolescent self-reported measures, particularly those obtained via interactive electronic methods, may provide a convenient, reliable alternative. As few are trained specifically in conducting QIDS clinical interviews, the availability of the QIDS-A-IVR may permit standardized assessment where it would not otherwise be available. Perfect instrument standardization is a strength of IVR assessments that cannot be matched by human raters. The relationship between parents' and adolescents' depression ratings was poor, regardless of the method of data collection. Other studies have shown similar results,[2,3] which extends concern about the value of parental ratings of adolescent depression. The current study also suggests parents may underestimate adolescents' experiences of energy disruption due to depression. This is not surprising given the internal, experiential nature of this symptom.

The strong and positive correlations between the QIDS measures and the CDRS-R provide support for the validity of the QIDS when applied in an adolescent setting. The significant correlation between the QIDS-C-P and the CDRS-R was unexpected given the low correlation between the QIDS-P-IVR and the CDRS-R and the modest

correlation between the QIDS-C-P and the QIDS-A-IVR. A possible explanation may be an order effect, as adolescents were interviewed before parents, and it would be difficult for the clinician not to utilize information obtained from the adolescent interview. Additional research is needed on the relationship of parent ratings to both adolescent and clinician assessments.

Feedback from adolescents and parents about the IVR assessments was positive with both groups finding the electronic assessments easy to use and addressing symptoms of depression properly. The speech recognition technology within the adolescent assessment functioned as programmed and was accepted by the adolescents. Given the popularity of cell phones among adolescents, speech recognition-enabled assessments may be well suited for this population.

The current study has some limitations. First, the sample size was small; additional research is needed with a larger and more diverse sample. In addition, the current study included adolescents with any nonpsychotic psychiatric disorder. Further research is needed on the use of the QIDS-A-IVR with depressed adolescents to determine effectiveness in measuring response to treatment. Since adolescents presented with symptoms in the mild range in this study, future research involving subjects with a wider range of symptom severity is warranted. Finally, this cross-sectional study measured adolescents' depression severity at one point in time. Future research is needed to examine the utility of the QIDS-A-IVR to detect changes in depression symptoms over time.

Depression is a serious and disabling condition affecting many adolescents.[9] Identifying and treating adolescent depression depends partly on the availability of sound, convenient, and efficient assessment methods. The QIDS-A-IVR has shown encouraging evidence for internal consistency, reliability, and convergent validity. Using innovative and appealing technology, the QIDS-A-IVR also showed acceptance among adolescents. Although additional research is needed on parent ratings, the QIDS-A-IVR may offer clinicians and researchers a novel, reliable, and valid depression severity measure that can be administered easily and quickly in a variety of settings.

Financial disclosure: Dr. Moore is an employee of Healthcare Technology Systems. Dr. Hughes is a consultant for GlaxoSmithKline and has received grant/research support from the National Institute of Mental Health (NIMH). Dr. Mundt is an employee and owner of Healthcare Technology Systems and has received grant/research support from GlaxoSmithKline. Dr. Rush is a consultant for Advanced Neuromodulation Systems, AstraZeneca, Best Practice Project Management, Bristol-Myers Squibb, Cyberonics, Eli Lilly, Forest, Gerson Lehman Group, GlaxoSmithKline, Jazz Pharmaceuticals, Magellan Health Services, Merck, Neuronetics, Ono Pharmaceuticals, Organon, Pamlab, Personality Disorder Research Corp., Urban Institute, and Wyeth-Ayerst; has received honoraria and is a member of the speakers' board for Cyberonics, Forest, and GlaxoSmithKline; has received research support from NIMH, Robert Wood Johnson, and The Stanley Medical Research Institute; is a stock shareholder for Pfizer; and has received royalties from Guilford Publications and Healthcare Technology Systems. Dr. Emslie is a consultant for Biobehavioral Diagnostics, Eli Lilly, GlaxoSmithKline, and Wyeth-Ayerst; has received grant/research support from Eli Lilly, Forest, and Organon; and is a member of the speaker/advisory board for McNeil. Ms. Geralts is an employee of Healthcare Technology Systems. Dr. Horrigan is an employee of GlaxoSmithKline. Dr. Trivedi has received grant/research support from Bristol-Myers Squibb, Cephalon, Corcept Therapeutics, Cyberonics, Eli Lilly, Forest, GlaxoSmithKline, Janssen, Merck, NIMH, National Alliance for Research in Schizophrenia and Depression, Novartis, Pfizer, Pharmacia & Upjohn, Predix, Solvay, and Wyeth-Ayerst; is a consultant for Abbott, Akzo (Organon), AstraZeneca, Bayer, Bristol-Myers Squibb, Cephalon, Cyberonics, Eli Lilly, Fabre-Kramer, Forest, GlaxoSmithKline, Janssen, Johnson & Johnson, Meade Johnson, Neuronetics, Parke-Davis, Pfizer, Pharmacia & Upjohn, Sepracor, Solvay, VantagePoint, and Wyeth-Ayerst; and is a member of the speakers' board for Abdi Brahim, Akzo (Organon), Bristol-Myers Squibb, Cephalon, Cyberonics, Eli Lilly, Forest, GlaxoSmithKline, Janssen, Pharmacia & Upjohn, Solvay, and Wyeth-Ayerst. Dr. Greist has received grant/research support from Bristol-Myers Squibb, Forest, GlaxoSmithKline, Janssen, Eli Lilly, Organon, Pfizer, Solvay, UCB Pharma, and Wyeth-Ayerst; is a consultant for Bristol-Myers Squibb, GlaxoSmithKline, Eli Lilly, Pfizer, and Solvay; is a member of the speakers' bureau for Bristol-Myers Squibb, Cyberonics, GlaxoSmithKline, Eli Lilly, Ortho-McNeil, Pfizer, Solvay, and Wyeth-Ayerst; and is an employee and owner of Healthcare Technology Systems. Drs. Jain and Bernstein and Ms. Macleod report no additional financial or other relationships relevant to the subject of this article.

REFERENCES

1. Poznanski EO, Mokros HB. Children's Depression Rating Scale, Revised (CDRS-R) Manual. Los Angeles, Calif: Western Psychological Services; 1995
2. Flanery R. Methodological and psychometric considerations in child reports. In: La Greca AM, ed. Through the Eyes of the Child: Obtaining Self-Reports From Children and Adolescents. Boston, Mass: Allyn & Bacon; 1990:57–82
3. Kazdin A. Assessment of childhood depression. In: La Greca AM, ed. Through the Eyes of the Child: Obtaining Self-Reports From Children and Adolescents. Boston, Mass: Allyn & Bacon; 1990:189–233
4. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC: American Psychiatric Association; 2000
5. Overholser JC, Brinkman DC, Lehnert KL, et al. Children's Depression Rating Scale-Revised: Development of a short form. J Clin Child Psychology 1995;24:443–452
6. Rutter M. Changing Youth in a Changing Society. Cambridge, Mass: Harvard University Press; 1980
7. Rush AJ, Trivedi MH, Ibrahim HM, et al. The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): a psychometric evaluation in patients with chronic major depression. Biol Psychiatry 2003;54:573–583
8. Rush AJ, Bernstein IH, Trivedi MH, et al. An evaluation of the Quick Inventory of Depressive Symptomatology and the Hamilton Rating Scale for Depression: a STAR*D report. Biol Psychiatry 2006;59:493–501
9. Angold A, Costello, EJ. The epidemiology of depression in children and adolescents. In: Goodyear IM, ed. The Depressed Child and Adolescent. 2nd ed. New York, NY: Cambridge University Press; 2001:143–178

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 Melissa P. DelBello, M.D., at delbelmp@email.uc.edu.

