

Depression and Suicide in Children and Adolescents

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Educational Gap

Despite national recommendations, screening for adolescent depression is generally uncommon and is typically characterized by regional and racial/ethnic disparities. This variability in practice may leave some adolescents disproportionately vulnerable to untreated depression. Further education about depression in general and specifically regarding screening may help address such disparities.

Objectives After completing this article, readers should be able to:

1. Describe the diagnostic criteria and initial assessment of depression.
2. Outline screening and management strategies for depression.
3. Discuss risk factors for and presentations of suicidal thoughts and behaviors.
4. Determine the acute management and secondary prevention of suicidality.

INTRODUCTION

Depression is underrecognized and undertreated in adolescents, with close to 75% of depressed adolescents not receiving treatment. Untreated depression in adolescence is associated with various adverse adult outcomes, including lower educational attainment and poorer physical health. Beyond the suffering and impaired functioning that depressed adolescents experience as well as the potential for future negative outcomes, the reality is that some affected adolescents commit suicide, further heightening the need for proactive assessment and treatment. Given the persistent shortage of mental health clinicians in the United States, significant emphasis has been placed on increasing the role of pediatricians in addressing this burden. In fact, a key pediatric quality metric that has garnered interest in recent years is screening for adolescent depression in primary care settings. In addition, the American Academy of Pediatrics included recognition and initial management of depression in its 2009 policy statement on recommended mental health competencies in primary care. (1) Given that

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adolescents with depression often present initially in the primary care setting, pediatricians are well positioned to contribute substantially to alleviating this burden.

CLINICAL PRESENTATION

The cardinal features of adolescent depression are sadness, irritability, and a loss of interest or pleasure in activities. The severity of depression ranges from mild to severe. In more severe cases, a broad constellation of other features are typically present, including a decline in school achievement, social isolation, sleep and appetite disturbances, and non-specific physical symptoms, all combining to cause significant distress and broad functional impairment. Less commonly, some adolescents may experience psychotic symptoms such as hallucinations and paranoid delusions. Many adolescents with depression also experience worsening of their physical health related to poor self-care behaviors, including those related to management of chronic illnesses. In many cases, increased risk behaviors, including sexual risk behaviors and substance use and abuse, may further compound these difficulties as adolescents ineffectively attempt to cope with their suffering. Further, some youth manifest oppositional and acting-out behaviors and may face disciplinary actions in the school setting, all due to their struggles with depression. Of greatest concern is the linkage between depression and both nonsuicidal self-harm behaviors and overt suicidal thoughts and behaviors. Mild and moderate depression may include a variety of these symptoms but with varying degrees of severity and impairment.

Generally, the presentation of childhood and adolescent depression is similar to that of adult depression, but developmental distinctions are critical to consider when applying uniform diagnostic criteria to dynamically developing children and youth. For example, younger children may present with somatic complaints rather than subjective reports of mood disturbance, depending on their ability to describe their experiences. Developmental nuances can also blur the distinction between normative adolescent behaviors and mood changes and clinical depression, possibly delaying diagnosis and treatment.

DIAGNOSIS

The diagnosis of depression is based on clinical interview of the patient with corroborative information solicited from parents and teachers. Major depressive disorder is characterized by one or more major depressive episodes involving at least five core features without any history of mania or hypomania. At least one of the previously noted cardinal

features and a complement of associated core symptoms must be present for at least 2 weeks to make the diagnosis of depression (Table 1). These symptoms must represent a change from the person's baseline and must cause impaired function across a variety of domains. In addition, there must not be any other clear primary causative factors, such as intoxication, medication effect, or medical illnesses such as endocrinopathies. Such endocrinopathies include hypothyroidism and diabetes, both of which may be associated with low energy, depressed mood, poor concentration, and changes in sleep and appetite when poorly controlled. For this reason, some evaluation for medical contributors to a patient's presenting symptoms is often warranted when making a diagnosis and identifying comorbidities. Of note, these medical illnesses and depression are not mutually exclusive; depression may coexist with a wide variety of chronic illnesses, including some that mimic certain features of depression.

Among the other key psychological conditions that should be considered in the differential diagnosis of depressive symptoms are dysthymia, grief, adjustment disorder with depressed mood, and bipolar disorder. Dysthymia, or persistent depressive disorder, can be present with or without a major depressive episode. In children and adolescents,

TABLE 1. **Diagnosis of Depression**

DIAGNOSIS REQUIRES AT LEAST FIVE OF NINE KEY FEATURES, PRESENT OVER AT LEAST A 2-WEEK PERIOD, REPRESENTING A DISTINCT CHANGE FROM PRIOR FUNCTIONING. AT LEAST ONE OF #1 AND #2 MUST BE PRESENT, AND THE SYMPTOMS MUST NOT BE DUE TO MEDICAL ILLNESS, INTOXICATION, OR OTHER CAUSES:

- 1) Depressed or irritable mood most of the day, nearly every day, as indicated by either subjective report (eg, feels sad or empty) or observations made by others (eg, appears tearful)
- 2) Decreased interest or pleasure in all or most activities for most of each day (self-report or observed by others)
- 3) Significant weight change ($\pm 5\%$) or change in appetite nearly every day
- 4) Change in sleep: insomnia or hypersomnia
- 5) Change in activity: psychomotor agitation or retardation (observable by others, not just subjective experience)
- 6) Fatigue or lack of energy
- 7) Guilt/worthlessness: excessive or inappropriate guilt or feelings of worthlessness
- 8) Poor concentration and/or indecision
- 9) Suicidality: recurrent thoughts of death or suicide, or has a suicide plan, or has made a suicide attempt

dysthymia is characterized by a depressed mood for most of the day almost every day for 1 year along with two additional symptoms such as a change in appetite, sleep disturbance, low energy, low self-esteem, poor concentration, and feelings of hopelessness. In contrast, grief characterizes a natural and healthy process that follows the death of a loved one or another significant loss. Careful exploration of the context of this nonpathologic sadness is crucial when evaluating a patient in grief. Importantly, suicidal thoughts and persistence beyond 6 months are not consistent with grief. Adjustment disorders are also associated with stressful experiences but are behavioral reactions that exceed expectations in terms of severity. The symptoms of adjustment disorder with depressed mood are milder than those of major depression and do not typically persist beyond 6 months after the stressor has resolved.

Bipolar disorder is characterized by the presence of depression with cyclical hypomania or mania. From 1996 to 2004, the rate of bipolar disorder diagnoses among children discharged from the hospital increased from 1.3 to 7.3 per 100,000 and the rate of adolescent diagnoses increased by 400%. During this time, some child and adolescent psychiatrists began to characterize mania as persistent, rather than episodic, severe irritability, (2) and debate about the exact nature of childhood bipolar disorder is ongoing. Importantly, the *Diagnostic and Statistical Manual of Mental Disorders 5th Edition* (DSM-5) includes the new diagnosis of disruptive mood dysregulation disorder to better characterize children who manifest concerning symptoms between ages 6 and 10 years. Children with this diagnosis display overly intense emotional outbursts, three or more times per week, along with irritability between the episodes over the course of at least 1 year.

The differential diagnosis of depression also includes medical illnesses such as thyroid dysfunction, Wilson disease, systemic lupus erythematosus, chronic infections, and hematologic abnormalities as well as normative mood fluctuations of adolescence, substance- or medication-induced mood disturbances, anxiety disorders, eating disorders, conduct disorder, and attention-deficit/hyperactive disorder (ADHD). All of these may occur concurrently with depression or simply mimic depressive features. A common clinical concern is inattention, which may derive from ADHD, anxiety, major depressive disorder, or some combination of multiple discrete clinical issues. As such, clinicians should elucidate and treat underlying depression or anxiety before attributing inattention solely to ADHD. Major depressive disorder can typically be distinguished from other possibilities through a careful interview that addresses the severity, timing, and persistence of symptoms and, if

needed, limited medical testing that often includes a thyroid panel and complete blood cell count.

Even after diagnosing depression, clinicians should pay close attention to the possibility of other comorbid psychiatric illnesses because at least 50% of children and adolescents with depression suffer comorbidities. These concurrent illnesses often significantly complicate management and tend to worsen outcomes. Anxiety disorders, disruptive behavior disorders, and substance abuse disorders are the most common comorbid psychiatric illnesses. Elucidating each distinct contributor to an adolescent's distress is essential for ensuring appropriate management and monitoring. The core diagnostic criteria of major depressive disorder remained unchanged in the recent DSM-5 update. (3) However, the bereavement exclusion, which applied to depressive symptoms lasting fewer than 2 months following the death of a loved one, was omitted. The rationale was that bereavement is not necessarily confined to a 2-month period after such loss, and major depression can emerge shortly after all types of stressors, including the death of a loved one. In place of the bereavement exclusion, detailed guidance was offered for clinicians on distinguishing bereavement alone from bereavement-associated depression.

EPIDEMIOLOGY, RISK FACTORS, AND NATURAL HISTORY

Rates of depression increase as children become adolescents. Onset before age 12 years is less common than onset in adolescence and is associated with worse long-term outcomes. In one survey of more than 45,000 adolescents (12–17 years old), the lifetime prevalence of depression was 13%. (4) Other studies have suggested that depression affects 20% to 25% of adolescents. Gender differences have been consistently demonstrated, with one study showing a 1-year and lifetime prevalence of 5% and 8%, respectively, in adolescent boys and 12% and 18% in adolescent girls. (4)

Key risk factors for depression are prior depressive episodes; a first-degree family history of depression; school failure; interpersonal and familial stressors; negativistic coping styles; chronic illnesses; and a history of anxiety, ADHD, or learning disability. Some broader subgroups of youth, such as sexual minority youth, are at particular risk. Adolescents with a genetic predisposition to depression may struggle inordinately with the typical stresses and transitions of adolescence. Relevant environmental factors include abuse and neglect, low educational and socioeconomic standing, and parental substance abuse. Depression is often rooted in a confluence of personal risk factors and stressful or traumatic life experiences. The interface between biologic

vulnerability and experiential and contextual risks is fundamental to understanding the cause of depression in each patient.

Major depressive episodes in adolescence generally last between 4 and 9 months, but a chronic undulating course of continued distress is common. Perpetuation of depression into adulthood is mediated by several factors. Adolescence is a crucial social, emotional, and cognitive developmental time period that can be substantially compromised by depression. This then can predispose an adolescent to continued depressive symptoms related to social difficulties, limited coping abilities, and academic failure. Despite this, other long-term outcomes can vary. In one cohort of adolescents with depression followed for 10 years, depression at ages 16 and 17 years was significantly associated with several negative health outcomes in young adulthood (5) but not with negative effects on employment and income, educational achievement, or marital status. Other studies, however, have offered conflicting views on these outcomes and the degree of impairment that depressed adolescents experience in young adulthood.

SCREENING

Depression screening is now widely recommended in adolescent primary care and is also a key focus of ongoing quality assurance/quality improvement efforts. In 2009, the United States Preventive Services Task Force (USPSTF) recommended screening for major depressive disorder in all adolescents 12 to 18 years when accurate diagnosis and treatment could be assured (B recommendation). (6) In contrast, they determined that evidence to support screening younger children was inadequate (I statement). The rationale for routine screening in adolescence includes:

- The clinical importance of major depression as a severely disabling condition associated with serious long-term morbidities and the risk of suicide
- The availability of validated screening instruments and effective treatment modalities
- The benefits of early intervention
- The challenges of individual case-finding due to stigma, parental/patient denial, and common assumptions of “typical teenage” behavior
- The well-established underrecognition and undertreatment of adolescent depression

The key evolution in the evidence base that prompted the USPSTF to change their recommendation was improved evidence that treatment could meaningfully alter clinical outcomes. Since the USPSTF recommendation was published, efforts have been ongoing to institute depression screening across various clinical contexts. Although screening

adolescents during annual health supervision visits using diagnostic criteria acronyms such as SIGECAPS (prompting questions about Sleep, Interest in activities, Guilt, Energy levels, Concentration, Appetite changes, Psychomotor changes, and Suicidal ideation) is standard practice, optimal methods for standardizing implementation and interpretation of screening instruments are still unknown. Depression screening practices generally remain extremely variable and are characterized by both regional and racial/ethnic disparities. (7)

Screening tools are not used for diagnosis but to raise awareness of clinically relevant distress that might otherwise remain veiled and to provide an approach for longitudinal monitoring of patients. Among the adolescent screening tools included in quality metrics are the Patient Health Questionnaire for Adolescents (PHQ-A), the Beck Depression Inventory-Primary Care Version (BDI-PC), the Mood and Feelings Questionnaire, the Center for Epidemiologic Studies Depression Scale for Children, and the PRIME MD-PHQ 2. Many other instruments are also available. The PHQ-A, which screens not only for mood issues but also for anxiety, substance abuse, and eating difficulties, and the BDI-PC were specifically highlighted in the USPSTF review as tools that have good evidence supporting their use in primary care screening.

Chronic illness is a risk factor for major depression, and depression in the context of illness can lead to significantly more suffering, worse medical outcomes over time, and increased health care spending. Accordingly, screening adolescents with chronic illness has garnered significant attention. However, many chronic illnesses and their treatments can cause symptoms that overlap with those of depression. For example, fatigue, which is a core symptom of depression, also is common during chemotherapy or from anemia. Sleep disturbance, another feature of depression, is common during treatment with corticosteroids and other medications. Teasing apart the roots of various symptoms can be challenging in the context of complex medical illness.

Whether typical screening instruments can be used to screen adolescents with chronic illness for depression remains an open question. Notably, some disease-specific organizations such as the American Diabetes Association have recommended routine screening for depression, and several authors have argued for screening in cystic fibrosis, cancer, epilepsy, and sickle cell disease among other illnesses.

CLINICAL ASSESSMENT

Understanding risk factors for depression in childhood and adolescence and elucidating such risks among patients is

a foundational component of addressing depression in pediatric settings. Assessing for symptoms and signs suggestive of depression in those with risk factors is often required because of the reticence of many young people to describe depressive symptoms spontaneously. Assessment should include interview of the patient as well as parents or other adult caregivers if possible. Before undertaking any such assessment, the clinician must discuss confidentiality and his or her obligation to report safety concerns with both the patient and adult caregiver to allow for an open discussion. In addition, the clinician should attempt to maintain a developmentally appropriate and family-centered approach. Normalizing questions may be helpful in eliciting forthright descriptions of the patient's experiences (eg, "This is a question I ask of all my patients," "Many teens your age struggle with sadness").

Following a positive screening result or in the context of concerning symptoms or signs, further evaluation should confirm or deny the presence of depression, clarify the severity and extent of associated symptoms, elucidate key exacerbating or mitigating influences, screen for medical and psychiatric comorbidities, and assess for functional impairment in the patient's critical life domains, including school, home, and interpersonal relationships. A developmentally targeted assessment of contributing stressors and contextual factors such as the patient's family and culture is also crucial. Depressive symptoms may be interpreted differently based on a patient's cultural background. One clear example was illustrated in a study that compared views about depressive symptoms held by Southeast Asian immigrants living in New York City with those of European Americans. (8) Southeast Asian immigrants were more likely to describe depressive symptoms as a social or moral problem and recommend community support rather than viewing it as a medical problem. Finally, assessment of any lethality and safety risks related to self-harm and suicidal thoughts and behaviors should be included and safety ensured as much as possible through safety planning. Details garnered through further assessment are not only important to clarify the immediate clinical situation but also to craft the optimal treatment approach that addresses the patient's symptoms, key contributing factors, and core depressive disorder as developmentally appropriate.

If depression is diagnosed, the patient and family should be educated and offered options for further assessment, treatment, and monitoring. Key education components include the causes of depression, associated symptoms, natural history and expectations, lethality risks, and safety planning. Treatment options should be discussed based on the patient's acute symptoms and functional impairment, the expected natural history of the patient's depression, and

the potential benefits of early proactive treatment. Stigma should also be directly addressed and defused as much as possible. Finally, the initial consultation is crucial in equipping adolescents and their parents with the tools to advocate for adequate supports and pursue treatment proactively. Providing a hopeful vision of the recovery process is critical.

MANAGEMENT

Management of depression requires clinical decision-making around the various treatment options available (therapy, medication, or a combination) while actively monitoring the patient's course and safety. With the USPSTF recommendation to screen all adolescents for depression, all pediatricians should have an organized approach to addressing this problem. Among the evidence-based resources available to guide pediatrician management of depression are the Guidelines for Adolescent Depression – Primary Care (GLAD-PC) toolkit (9)(10) and the 2007 Texas Children's Medication Algorithm Project consensus update. (11)

In 2009, a collaborative group of pediatricians and mental health experts compiled the GLAD-PC toolkit, which outlines an approach to the diagnosis and management of adolescent depression in primary care. This free toolkit includes standardized assessment scales as well as guidance for each key step of depression management: 1) how to manage the acute presentation of depression, 2) when to refer, 3) how to initiate treatment with a medication, and 4) how to assess medication effects and navigate the maintenance phase of treatment.

How to Manage the Acute Presentation of Depression

Whether an adolescent with depression is identified through screening or after presenting with acute mood symptoms, decision-making processes and management strategies are the same. The first step is to determine severity and assess safety. After ascertaining these elements, the pediatrician can determine appropriate subsequent steps in evaluation and treatment. (10) Severity is normally determined through rating scales and by ascertaining a patient's degree of functional impairment from depression. Mildly depressed patients typically can manage routine daily activities and do not experience any major disruption of school activities or relationships with friends and family. Moderately depressed patients often experience academic difficulties and strained relationships with friends and family and may decrease their involvement in activities due to their symptoms. Severe depression is marked by significant functional impairment in multiple domains and increased concern among friends and family for the adolescent's safety and well-being.

For mild depression, pediatricians can initiate a period of active support and monitoring before starting other treatments. This strategy typically includes weekly or biweekly appointments to assess the patient's depression and provide support. Active support can include further education of the patient and family about depression, advice regarding increasing exercise and other self-care behaviors, and development of specific self-management goals. Active support and monitoring is an important option for pediatricians to consider because adolescence is a period in which many youth experience transient mood changes. Because persistence of depressed mood is a critical part of the diagnosis of depression, active support and monitoring can be both therapeutically useful and diagnostically fruitful in elucidating which patients would benefit from directed evidence-based treatments.

A reasonable approach for adolescents with moderate or severe depression is consultation with a mental health clinician to determine an appropriate management strategy, which often may include continued proactive management in the primary care setting. A variety of psychopharmacological agents can be prescribed in primary care, and adolescents can receive several types of evidence-based psychotherapy when referred to a mental health clinician. As mentioned, safety assessment is crucial and is discussed in more detail in the section in this article on suicide and safety planning. Adolescents who are actively suicidal must be referred to the emergency department and hospitalized acutely. Most others can be managed in the outpatient setting. Because of shortages of mental health specialists, pediatricians are often called upon to take the lead in caring for these patients.

When to Refer and What a Therapist Will Do

In the GLAD-PC guidelines, consultation with a mental health clinician is a key consideration for adolescents with moderate or severe depression. Referral may also be appropriate in the context of diagnostic uncertainty, complex comorbidity with other psychiatric or medical illnesses, severe impairment, lethality concerns, or complex psychosocial dynamics. The type and availability of consultative support varies greatly by state and practice setting. Mental health consultation can involve collaboration with a child and adolescent psychiatrist or therapist in the area or utilization of a state-run program such as the Massachusetts Child Psychiatry Access Project, which provides a hotline for primary care pediatricians to call with mental health questions.

Evidence suggests that treatment with therapy alone or a combination of psychotherapy and medication is effective for mild-to-moderate depression. The two types of

psychotherapy with the most evidence to support their use in adolescent depression are cognitive behavioral therapy (CBT) and interpersonal therapy (IPT). Both modalities involve a therapist, typically a psychologist or social worker, meeting with the adolescent individually on a weekly basis over a period of several months using specific methods, often based on manuals developed through research studies.

In CBT, adolescent patients work with a therapist individually or in a group to examine and change cognitive factors and behaviors that are related to their depression and may be perpetuating it. The cognitive component of CBT focuses on understanding automatic thoughts and cognitive distortions and how they influence mood. The therapist works with the adolescent to change these thought patterns. For example, cognitive restructuring is a technique common to many CBT treatments in which the therapist helps the adolescent identify how his or her beliefs are related to specific consequences. Often therapists use thought records to help adolescents track their mood and identify thoughts and behaviors that are associated with changes in mood. Adolescents are taught problem-solving and coping skills as well as techniques for remembering the skills, as in one study in which adolescents created and carried "coping cards" to remind them of their coping skills. (12)

In IPT, the adolescent and therapist address depressive symptoms by focusing on the process of symptom formation and interpersonal functioning. The therapist works with the adolescent to identify problems and elucidate ways to communicate effectively to solve the problems. Importantly, the therapist often role-plays this communication strategy with patients to help them prepare to implement new communication strategies themselves. Role transitions are also a focus of IPT as therapists discuss with adolescents how their lives are changing and strategies for coping with these changes. Both IPT and CBT often involve parents and both have demonstrated efficacy for treatment of adolescent depression in randomized clinical trials.

The pediatrician who is planning a referral to a mental health clinician should discuss with the patient and family the role of the therapist or psychiatrist and the continuing role of the pediatrician. In the scenario in which the child is receiving therapy and the pediatrician is prescribing a medication, the pediatrician's continued role is to assess the patient's response to the medication, including adverse effects, and to collaboratively monitor the patient's safety with the therapist, who is helping the adolescent make behavioral changes to improve the depression. Clinicians must follow patients closely during times of medication initiation and titration to monitor for adverse effects, track their level of functioning at school and in relationships with

friends and family, and gauge their symptoms over time. When conducting a trial of a medication, pediatricians should see patients approximately every 2 weeks, depending on the desired tempo of dose adjustment.

How to Initiate Treatment With Medication

In one study of primary care pediatricians and family medicine physicians, 58% reported prescribing selective serotonin reuptake inhibitor (SSRI) medications, but only 8% reported adequate training in using them. (13) Prescribing antidepressant medications is also relatively common among pediatric specialists. For example, 71% of pediatric oncologists reported prescribing an SSRI in a 2012 survey. (14) With the recommendation to screen adolescents in primary care for depression, pediatricians not only should continue to prescribe SSRIs but they should improve their general knowledge base and comfort in using them in an evidence-based manner.

As described previously, psychopharmacologic treatment is appropriate for adolescents with moderate-to-severe depression and for those with mild depression that has not improved with active support and monitoring. Several guidelines and studies provide the evidence base for the management of depression with SSRI medications, including GLAD-PC, the Texas Children's Medication Algorithm, and the Treatment for Adolescents with Depression Study (TADS), (15) a large National Institutes of Health (NIH)-funded trial comparing medication, psychotherapy, and combined treatment.

The only SSRI medications with a U.S. Food and Drug Administration (FDA) indication for depression in adolescents are fluoxetine and escitalopram, although citalopram and sertraline have also been shown to be effective in some studies. Consensus guidelines indicate that fluoxetine is the preferred medication for treatment of adolescent depression. Fluoxetine can be started at 5 to 10 mg daily and titrated upwards at 2-week intervals based on the patient's clinical response up to a target range of 20 to 80 mg daily (Table 2). The Texas Children's Medication Algorithm includes ascertainment every 2 weeks of whether the patient has had a full response, a partial response, or no response and whether any safety concerns and adverse effects have arisen. The dose is escalated for patients who have had no response or a partial response (improvement in some but not all depressive symptoms) and have not had any dose-limiting adverse effects. Of note, if a patient has comorbid anxiety, a lower starting dose and slower dose titration may be necessary.

In the TADS trial, 69% of adolescents with depression responded to fluoxetine treatment at 18 weeks, while 85% responded to a combination of fluoxetine and psychotherapy.

(15) The TADS trial highlighted the value of combining medication and psychotherapy in treating depression when possible. In general, a treatment trial of a particular SSRI should be more broadly evaluated at 6 to 8 weeks or sooner if the target dose has already been achieved. If the patient has not experienced any meaningful benefit at that point, another agent should be tried. The patient could be cross-titrated to a second SSRI by decreasing the first medication over 2 to 4 weeks while initiating and titrating the second medication in a manner similar to that previously described. Again, continued dose increases are appropriate at each assessment point if there is only a partial response and the maximal dose has not yet been achieved.

Selective Serotonin Reuptake Inhibitor Adverse Effects

An SSRI medication must be started at low doses and increased gradually to achieve adequate benefit. This practice reduces the incidence of some adverse effects and is consistent with recent data indicating that initiating therapy with higher-than-recommended doses is associated with increased self-harm episodes. (16) The study found that for 10- to 24-year-olds started on higher-than-recommended doses of SSRIs (>20 mg of fluoxetine), the odds of self-harm were twofold greater than for those started on lower doses.

In 2004, the FDA added a black box warning to all SSRI medications, including fluoxetine, indicating a risk for increased suicidal ideation in adolescents treated with these medications. Active debate regarding the black box warning and how to appropriately treat adolescents with depression in the context of the warning continues. Some data have suggested that suicide attempts increased following the black box warning and that depressed adolescents treated with SSRIs were less likely to commit suicide because of improvement in their depression. At present, standard practice includes detailed discussion of the black box warning with patients and parents and encouragement to share any changes in mood or increases in suicidal thinking immediately with the treatment team. Importantly, untreated depression remains a more significant risk factor for suicidal thoughts and behaviors than SSRI treatment in most patients.

In addition to discussing and monitoring for suicidality, clinicians should counsel patients about and actively monitor for other adverse effects of SSRIs. These include agitation or the precipitation of mania among at-risk adolescents (often with a strong family history of bipolar disorder). Other possible adverse effects include headache, abdominal pain, and sleep disturbance, all of which are relatively rare. These adverse effects are most common after dosage changes and often improve after several days.

TABLE 2. Selective Serotonin Reuptake Inhibitors (SSRIs) in Pediatric Care Settings

| PEDIATRIC FDA APPROVAL | SSRI | STARTING DOSE | TARGET DOSE | MAXIMUM DOSE | COMMENTS |
|------------------------|--------------|---------------|-------------|--------------|--|
| Adolescent MDD | Escitalopram | 5 mg | 10–20 mg | 20 mg | Recent studies show QTc prolongation at doses >20 mg |
| MDD and OCD | Fluoxetine | 5–10 mg | 20–80 mg | 80 mg | |
| OCD | Sertraline | 25 mg | 50–100 mg | 200 mg | |
| OCD | Fluvoxamine | 50 mg | 100–150 mg | 300 mg | |
| | Citalopram | 10 mg | 20–40 mg | 40 mg | Recent studies show QTc prolongation at doses >40 mg |
| | Paroxetine | 10 mg | 20 mg | 60 mg | |

FDA=U.S. Food and Drug Administration, MDD=major depressive disorder, OCD=obsessive compulsive disorder, QTc=corrected QT interval

Maintenance Phase of Treatment

Treatment with SSRIs leads to remission of depressive symptoms for most adolescent patients. Following remission, patients should continue medication treatment for at least 1 year because relapse rates are greater when treatment is discontinued earlier. During the maintenance phase of treatment, clinicians should continue to meet with patients every 3 months to monitor symptoms and assess for adverse medication effects. Importantly, clinicians should conceptualize depression as a chronic illness to their patients and communicate the importance of follow-up assessments, even in the absence of any active symptoms. Continually helping adolescents to understand their condition and its treatment is crucial in supporting their ongoing self-care and equipping them to communicate relevant information to any new clinicians they may meet when they transition to college or to an adult-centered medical practice.

Although up to 80% of adolescents with depression respond to treatment, some are treatment-resistant. For this group, consultation with a child and adolescent psychiatrist is strongly recommended. A recent NIH-funded trial called the Treatment of SSRI-resistant Depression in Adolescents (TORDIA) study evaluated treatment strategies for this group. This study provided detailed guidance regarding the use of medications, either SSRIs or venlafaxine, in managing these particularly difficult cases.

SUICIDE AND SUICIDAL BEHAVIOR

Epidemiology

For the past 25 years, suicide has been the third leading cause of death among adolescents and young adults ages 10 to 24 years in the United States. (17) In 2010, there were

4,867 suicide deaths, second only to unintentional injury as the leading cause of death, in this age group. Firearms were the most common mechanism of completed suicide, accounting for 48.7% of suicide deaths; suffocation (36.1%) and poisoning (7.9%) were the next most common causes. Among boys and young men, firearms accounted for 51.8% of completed suicides, whereas hanging and suffocation were the leading causes among girls and young women, accounting for 44.6% of suicide deaths. Suicide is generally rare among children younger than age 14 years, with a prevalence of about 1.5 per 100,000, but the prevalence is increasing among 10- to 14-year-olds, and those who attempt suicide in this age group are at high risk for future attempts later in adolescence.

Far more adolescents seriously consider and attempt suicide than actually complete a suicide attempt. In the 2011 Youth Risk Behavior Surveillance System, a survey of 9th- through 12th-grade students administered by the Centers for Disease Control and Prevention (CDC), 7.8% of students reported having attempted suicide and almost 16% reported having devised a suicide plan within the year before the survey. Girls consider and attempt suicide more often than boys, with an attempt rate of 9.8%, but boys complete suicide more frequently than girls, accounting for 81% of all suicide deaths among 10- to 24-year-olds. Among 6th- through 8th- grade students, the frequency of suicide attempts was lower, but still substantial, with 5.7% reporting attempts.

Screening for Suicide Risk

Many youth have risk factors for suicide, but relatively few attempt suicide, and evidence to support mass screening of adolescents and adults in primary care for suicidal risk is inconclusive. As a result, a recent USPSTF review resulted

in an “I statement” indicating that available evidence was insufficient to make a definitive recommendation regarding screening adolescents and adults in primary care for suicide risk. (18) Although mass screening may not be indicated, high-risk youth should be screened regularly for suicidality based on the significant number of youth who resort to suicide to cope with distress. Any youth found to have such risk should be linked acutely to appropriate mental health services and support.

Many suicide screening tools are available. The gold standard for screening at-risk adolescents is the 30-question Suicidal Ideation Questionnaire. In addition, a recent study in an emergency department setting found that a brief four-item screening approach might also be useful, yielding a sensitivity of 96.9% and a specificity of 87.6% (Table 3). (19)

Risk Assessment

Primary care physicians often serve as the gateway for assessment and treatment of mental health concerns. Primary care visits account for 70% of all adolescent visits each year, and nearly 75% of adolescents who complete suicide have seen a medical professional within 4 months of doing so. Therefore, the need for pediatricians to ascertain and manage suicide risk is great. Familiarity with the risk factors for and warning signs of suicide is a critical foundation for preparedness. More than 90% of teens who attempt suicide have an underlying psychiatric illness, typically depression, bipolar disorder, or an anxiety disorder. Knowing the presentation of these illnesses in adolescence is paramount for pediatricians because many children and teens have never seen a mental health professional. The other major risk factors are a history of a prior attempt; parental psychopathology, including having a family member who completed suicide; alcohol and drug use; and access to lethal methods such as firearms. Some youth may signal their suicidal plans by isolating themselves socially, giving away belongings, or conveying their intent to peers or through social media. Protective factors against suicidality include strong family connectedness, school engagement, effective coping skills, and the absence of lethal means in the home.

Many adolescents who attempt suicide identify a loss or stressful life event as the key precipitant. These events may include even commonplace life stressors such as disappointing school grades, breaking up with a boyfriend or girlfriend, or getting into trouble at school or with parents. When talking with adolescents in distress, it is important to avoid trying to “fix it.” Rather, listening carefully, asking sensitive and probing questions, and avoiding judgment are critical. The adolescent’s subjective experience of the event

TABLE 3. **The Ask-Suicide Screening Questions (ASQ) (19)**

1. In the past few weeks, have you ever felt that your family would be better off if you were dead?
2. In the past few weeks, have you wished you were dead?
3. In the past week, have you been having thoughts about killing yourself?
4. Have you ever tried to kill yourself?

or problem is more important than the objective severity of the issue.

Exposure to suicidal behaviors has also been identified as a risk factor for suicidality. Commonly known as contagion, rates of suicide often increase among adolescents after a peer suicide. In one study, 12- to 13-year-olds who had a peer commit suicide were five times (from 3.4% to 15%) more likely to contemplate suicide themselves. (20) Media and the Internet rapidly spread accounts of completed suicides, often sensationalizing the use of suicide as a method of avoiding problems and garnering attention. These effects can be mitigated through proactive interventions such as provision of psychological debriefings by mental health professionals in the wake of a completed suicide.

The linkage between bullying and suicide has received substantial attention in the media and among mental health professionals. Evidence suggests that any involvement in bullying, even as a bystander, can lead to serious and long-lasting negative consequences. Both bullies and victims report higher rates of suicide-related behaviors, and those who have experienced both roles are at even greater risk. Sexual minority youth, youth with learning or physical disabilities, youth who are overweight or obese, and those who manifest distinct cultural differences among their peers are among the most likely to be bullied. Sexual minority youth have a two to three times higher rate of suicide than their heterosexual peers, often related to bullying and harassment. Bullying causes hopelessness and helplessness, two variables that increase suicidal behaviors.

The relationship between bullying and suicide is complicated and not directly causative. It is important to frame the issue cautiously to avoid promoting sensationalized reporting and consequent copycat or contagion suicide attempts. Importantly, being involved in bullying does not make an adolescent directly responsible for a peer’s suicidal behaviors. Adults must be careful to not focus on bullying as the central or sole problem but to attend to underlying mental health issues, lack of social supports, and coping

deficits as other key contributors. The CDC offers anti-bullying programs for schools and teen groups, which are described at www.cdc.gov/violenceprevention and www.stopbullying.gov.

Management

Nearly 80% of teens thinking about suicide want others to know about their suffering and stop them from harming themselves. It is a common misconception, even among physicians, that talking to adolescents about suicide promotes such ideas or may precipitate an attempt. However, it is well established that asking about suicide does not increase the likelihood of an individual thinking about or committing suicide.

Acutely suicidal adolescents should be taken to the emergency department for further evaluation by a mental health professional. Dialectical behavioral therapy, CBT, and treatment of the underlying mental illness are all crucial, evidence-based interventions to reduce suicide risk. Youth with severe depression, multiple attempts, persistent suicidal ideation, low family income, a history of sexual abuse, and poor family support are at greater risk of future attempts and poorer outcomes. (21) For adolescents who have had prior attempts or endorse having ongoing suicidal ideation, safety plans have been proven to help prevent suicidal behaviors but safety contracts have not. (22) Safety plans have seven key elements: 1) recognizing the warning signs of a crisis; 2) using coping skills without contacting others; 3) naming people who can support and distract; 4) identifying close friends/adults who can potentially help resolve a crisis; 5) knowing mental health professionals or agencies to contact, including local emergency services and the lifeline number 1-800-273-8255; 6) ensuring a safe environment, and 7) having a positive focus to leverage (eg, something specific to live for or something that has particular meaning to the patient). A safety plan template is available online at <http://www.sprc.org/sites/sprc.org/files/Safety-PlanTemplate.pdf>.

Finally, when assessing a suicide attempt by an adolescent, the lethality of the method chosen does not reliably correlate with the specific intent of the action. The term “suicidal gesture” has been used by many to describe suicide attempts involving less lethal methods. Any attempts must be considered a maladaptive means of coping and asking for help with mental health issues such as depression and anxiety. Importantly, youth often do not know the number

or types of pills that are lethal. As a result, even objectively less lethal attempts must be taken very seriously because they often signify genuine suicidal intent and may be a precursor to repeat attempts that are more severe. Further, self-poisoning after 6 years of age is unlikely to be accidental, and any such incidents should heighten concern for psychological distress.

CONCLUSION

Although the burden of adolescent depression and suicide is tremendous and community resources for addressing these issues is often limited, evidence-based screening and treatment modalities are readily available and pediatricians are uniquely positioned to have a meaningful impact on this burden. Given the wide-ranging effects of depression in an adolescent’s life, effective intervention can yield significant dividends in both the short and long term. Depression management is an increasingly crucial skillset for pediatricians to acquire and apply proactively.

Summary

- Depression is underrecognized and undertreated, leading to worse long-term outcomes for many affected adolescents.
- Based on strong research evidence, adolescents ages 12 through 18 years should be screened for depression when further assessment and treatment can be assured. (6)
- The diagnosis of depression is derived from a developmentally appropriate clinical interview of the patient and corroborative information solicited from parents and teachers.
- Active support and monitoring may be an appropriate initial management strategy for mild depression.
- Based on some research evidence as well as consensus, a combination of psychotherapy and pharmacotherapy is more effective than either treatment modality alone.
- Although universal systematic screening for suicidality is not supported by current evidence, all adolescents with known risk factors for suicide should be screened proactively.
- Based on some evidence, safety plans have been shown to help prevent suicidal behaviors but safety contracts have not.

View the References for this article at <http://pedsinreview.aapublications.org/content/36/7/299.full>.

PIR Quiz

1. You see a 13-year-old girl who complains of 2 to 3 months of abdominal pain that increases when she eats but does not wake her from sleep. She has no vomiting, diarrhea, or fever. She has intermittent headaches as well as vague muscular complaints. The girl also has difficulty falling asleep and wakes every few hours throughout the night. She does not want to attend school and has little interest or energy for sports, academics, or other activities. When forced, she attends school, but her grades are declining and she is starting to miss more school days because of her abdominal pain. She has lost 5 lb. Which of the following is the most appropriate next step in management?
 - A. Administer a depression screening questionnaire.
 - B. Order a barium swallow study.
 - C. Recommend an elimination diet.
 - D. Refer her to a neurologist for a headache evaluation.
 - E. Request the school to accommodate patient's chronic pain (implement 504 plan).
2. You see a 15-year-old boy in whom you have diagnosed depression. His symptoms started when he transitioned to high school. He has been sleeping 12 hours per day and has gained 10 lb. He is failing his classes and is inattentive and distracted in the classroom. He is very reluctant to participate in any physical activity. On physical examination, he is overweight and has mild facial acne. The remainder of his physical examination findings is normal. His parents ask what medical testing should be done. Of the following, the most appropriate next step in medical evaluation is:
 - A. Complete blood cell count and thyroid studies.
 - B. Cortisol and growth hormone studies.
 - C. Gastrointestinal consultation.
 - D. Magnetic resonance imaging of the brain.
 - E. Testosterone and estradiol evaluation.
3. Your practice routinely administers depression screening to all teenagers. A 13-year-old girl for whom you have cared since infancy completes a screening instrument, and the results are consistent with depression. Her mother accompanied her to the visit. You are close friends with her family and know that the girl is an honor student and accomplished athlete who has recently won awards for her accomplishments. Her parents have always shared developmental concerns with you, and her mother does not bring up any worries regarding depression in her daughter. Which of the following is your most appropriate next step?
 - A. Avoid discussion of duty to report safety concerns.
 - B. Discuss the effectiveness of cognitive behavioral therapy.
 - C. Interview both mother and daughter regarding depression symptoms.
 - D. Privately discuss with mother possible screening tools for attention-deficit/hyperactivity disorder and learning disabilities.
 - E. Schedule another visit with parents, siblings, and the girl present.
4. Using screening questionnaires and interview, you determine that a 16-year-old girl is moderately to severely depressed. The next most important step in your care of this girl is to:
 - A. Assess her safety risk for self-harm.
 - B. Discuss the likelihood that her depression is a lifelong condition.
 - C. Enroll her in an adolescent support group.
 - D. Prescribe low-dose fluoxetine.
 - E. Provide handouts on medication and cognitive behavioral therapy.
5. A 15-year-old boy has a history of suicide attempt using a firearm at 11 years of age. His symptoms of depression resolved after 2 years of medication and cognitive behavioral therapy. He lives with four siblings and his parents, and his family spends time together with many different family activities. Several months ago, the boy began sleeping 12 hours per night, lost his appetite, and lost 10 lb in the last month. He relates that he has no interest in friends or school, stating that he feels very much like he did several years ago.

REQUIREMENTS: Learners can take *Pediatrics in Review* quizzes and claim credit online only at: <http://pedsinreview.org>.

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This journal-based CME activity is available through Dec. 31, 2017, however, credit will be recorded in the year in which the learner completes the quiz.

You discuss both his present symptoms and his history with the boy and his mother. Of the following, the most appropriate topic to address is the boy's:

- A. Increased risk of suicidal ideation with his history of suicide attempt.
- B. Need for independence from his siblings and parents.
- C. Need for an urgent inpatient psychiatric admission.
- D. Need to be screened for systemic lupus erythematosus and thyroid disorders.
- E. Relatively low risk for recurrent depression.

Parent Resources from the AAP at HealthyChildren.org

- <https://www.healthychildren.org/English/health-issues/conditions/emotional-problems/Pages/Childhood-Depression-What-Parents-Can-Do-To-Help.aspx>
- Spanish: <https://www.healthychildren.org/spanish/health-issues/conditions/emotional-problems/Paginas/Childhood-Depression-What-Parents-Can-Do-To-Help.aspx>
- <https://www.healthychildren.org/English/ages-stages/teen/Pages/Mental-Health-and-Teens-Watch-for-Danger-Signs.aspx>
- Spanish: <https://www.healthychildren.org/spanish/ages-stages/teen/Paginas/Mental-Health-and-Teens-Watch-for-Danger-Signs.aspx>
- <https://www.healthychildren.org/English/health-issues/conditions/emotional-problems/Pages/Ten-Things-Parents-Can-Do-to-Prevent-Suicide.aspx>
- Spanish: <https://www.healthychildren.org/spanish/health-issues/conditions/emotional-problems/Paginas/Ten-Things-Parents-Can-Do-to-Prevent-Suicide.aspx>

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