

Depression in Children and Adolescents

A Fact Sheet for Physicians

This fact sheet, prepared by the National Institute of Mental Health (NIMH), the lead Federal agency for research on mental disorders, summarizes some of the latest scientific findings on child and adolescent depression and lists resources where physicians can obtain more information.

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Depressive disorders, which include major depressive disorder (unipolar depression), dysthymic disorder (chronic, mild depression), and bipolar disorder (manic-depression), can have far reaching effects on the functioning and adjustment of young people. Among both children and adolescents, depressive disorders confer an increased risk for illness and interpersonal and psychosocial difficulties that persist long after the depressive episode is resolved; in adolescents there is also an increased risk for substance abuse and suicidal behavior.^{1,2,3} Unfortunately, these disorders often go unrecognized by families and physicians alike. Signs of depressive disorders in young people often are viewed as normal mood swings typical of a particular developmental stage. In addition, health care professionals may be reluctant to prematurely “label” a young person with a mental illness diagnosis. Yet early diagnosis and treatment of depressive disorders are critical to healthy emotional, social, and behavioral development.

Although the scientific literature on treatment of children and adolescents with depression is far less extensive than that concerning adults, a number of studies—mostly conducted in the last four to five years—2 have confirmed the short-term efficacy and safety of treatments for depression in youth. Larger treatment trials are needed to determine which treatments work best for which youngsters, and studies are also needed, however, on how to best

incorporate these treatments into primary care practice.

Given the challenging nature of the problem, it is usually advisable to involve a child psychiatrist or psychologist in the evaluation, diagnosis, and treatment of a child or adolescent in whom depression is suspected.

Scope of the Problem

A number of epidemiological studies have reported that up to 2.5 percent of children and up to 8.3 percent of adolescents in the U.S. suffer from depression.⁴ An NIMH-sponsored study of 9- to 17-year-olds estimates that the prevalence of any depression is more than 6 percent in a 6-month period, with 4.9 percent having major depression.⁵ In addition, research indicates that depression onset is occurring earlier in life today than in past decades.⁶ A recently published longitudinal prospective study found that early-onset depression often persists, recurs, and continues into adulthood, and indicates that depression in youth may also predict more severe illness in adult life.⁵ Depression in young people often co-occurs with other mental disorders, most commonly anxiety, disruptive behavior, or substance abuse disorders,⁷ and with physical illnesses, such as diabetes.⁸

Suicide. Depression in children and adolescents is associated with an increased risk of suicidal behaviors.^{3,9} This risk may rise, particularly among adolescent boys, if

Symptoms of Major Depressive Disorder Common to Adults, Children, and Adolescents¹⁴

- Persistent sad or irritable mood
- Loss of interest in activities once enjoyed
- Significant change in appetite or body weight
- Difficulty sleeping or oversleeping
- Psychomotor agitation or retardation
- Loss of energy
- Feelings of worthlessness or inappropriate guilt
- Difficulty concentrating
- Recurrent thoughts of death or suicide

Five or more of these symptoms must persist for 2 or more weeks before a diagnosis of major depression is indicated.

Signs That May Be Associated with Depression in Children and Adolescents

- Frequent vague, non-specific physical complaints such as headaches, muscle aches, stomachaches or tiredness
- Frequent absences from school or poor performance in school
- Talk of or efforts to run away from home
- Outbursts of shouting, complaining, unexplained irritability, or crying
- Being bored
- Lack of interest in playing with friends
- Alcohol or substance abuse
- Social isolation, poor communication
- Fear of death
- Extreme sensitivity to rejection or failure
- Increased irritability, anger, or hostility
- Reckless behavior
- Difficulty with relationships

the depression is accompanied by conduct disorder and alcohol or other substance abuse.¹⁰ In 1997, suicide was the third leading cause of death in 10- to 24-year-olds.¹¹ NIMH-supported researchers found that among adolescents who develop major depressive disorder, as many as 7 percent may commit suicide in the young adult years.³ Consequently, it is important for doctors and parents to take all threats of suicide seriously.

NIMH researchers are developing and testing various interventions to prevent suicide in children and adolescents. Early diagnosis and treatment, accurate evaluation of suicidal thinking, and limiting young people's access to lethal agents—including firearms¹² and medications—may hold the greatest suicide prevention value.

Clinical Characteristics

The diagnostic criteria and key defining features of major depressive disorder in children and adolescents are the same as they are for adults. However, recognition and diagnosis of the disorder may be more difficult in youth for several reasons. The way symptoms are expressed varies with the developmental stage of the youngster.^{1,2} In addition, children and young adolescents with depression may have difficulty in properly identifying and describing their internal emotional or mood states. For example, instead of communicating how bad they feel, they may act out and be irritable toward others, which may be interpreted simply as misbehavior or disobedience. Research has found that parents are even less likely to identify major depression in their adolescents than are the adolescents themselves.¹³

While the recovery rate from a single episode of major depression in children and adolescents is quite high,¹⁵ episodes are

likely to recur.¹⁶ In addition, youth with dysthymic disorder are at risk for developing major depression.¹⁷ Prompt identification and treatment of depression can reduce its duration and severity and associated functional impairment.

Screening

There are several tools that are useful for screening children and adolescents for possible depression. They include the Children's Depression Inventory (CDI)¹⁸ for ages 7 to 17; and, for adolescents, the Beck Depression Inventory (BDI)¹⁹ and the Center for Epidemiologic Studies Depression (CES-D) Scale.²⁰ When a youngster screens positive on any of these instruments, a comprehensive diagnostic evaluation by a mental health professional is warranted. The evaluation should include interviews with the youth, parents, and when possible, other informants such as teachers and social services personnel.

Risk Factors

In childhood, boys and girls appear to be at equal risk for depressive disorders; but during adolescence, girls are twice as likely as boys to develop depression.⁴ Children who develop major depression are more likely to have a family history of the disorder, often a parent who experienced depression at an early age, than patients with adolescent- or adult-onset depression.²¹ Adolescents with depression are also likely to have a family history of depression, though the correlation is not as high as it is for children.

Other risk factors include:

- Stress²²
- Cigarette smoking²²
- A loss of a parent or loved one²³
- Break-up of a romantic relationship²⁴

- Attentional, conduct, or learning disorders²⁵
- Abuse or neglect²⁶
- Other trauma, including natural disasters²⁷

Treatment

Treatment for depressive disorders in children and adolescents often involves short-term psychotherapy, medication, or the combination, and targeted interventions involving the home or school environment. There remains, however, a pressing need for additional research on the effectiveness of psychosocial and pharmacological treatments for depression in youth. While data from adults indicate the need for maintenance treatment after episode recovery in order to prevent recurrences, the value of such treatment in children and adolescents has yet to be determined through research.

Psychotherapy. Recent research shows that certain types of short-term psychotherapy, particularly cognitive-behavioral therapy (CBT), can help relieve depression in children and adolescents.^{1,28,29} CBT is based on the premise that people with depression have cognitive distortions in their views of themselves, the world, and the future. CBT, designed to be a time-limited therapy, focuses on changing these distortions. An NIMH-supported study that compared different types of psychotherapy for major depression in adolescents found that CBT led to remission in nearly 65 percent of cases, a higher rate than either supportive therapy or family therapy. CBT also resulted in a more rapid treatment response.³⁰

Another specific psychotherapy, interpersonal therapy (IPT), focuses on working through disturbed personal relationships that may contribute to depression. IPT has not been well investigated in youth with

depression; however, one controlled study found that IPT led to greater improvement than clinical contact alone.³¹

Continuing psychotherapy for several months after remission of symptoms may help patients and families consolidate the skills learned during the acute phase of depression, cope with the after-effects of the depression, effectively address environmental stressors, and understand how the young person's thoughts and behaviors could contribute to a relapse.¹

Medication. Research clearly demonstrates that antidepressant medications, especially when combined with psychotherapy, can be very effective treatments for depressive disorders in adults.³² Using medication to treat mental illness in children and adolescents, however, has caused controversy. Many doctors have been understandably reluctant to treat young people with psychotropic medications because, until fairly recently, little evidence was available about the safety and efficacy of these drugs in youth.

In the last few years, however, researchers have been able to conduct randomized, placebo-controlled studies with children and adolescents. Some of the newer antidepressant medications, specifically the selective serotonin reuptake inhibitors (SSRIs), have been shown to be safe and efficacious for the short-term treatment of severe and persistent depression in young people, although large scale studies in clinical populations are still needed. So far, there are two controlled studies showing efficacy of fluoxetine and paroxetine, respectively.^{33,34} It is important to note that available studies do not support the efficacy of tricyclic antidepressants (TCAs) for depression in youth.^{35,36}

Medication as a first-line course of treatment should be considered for children and adolescents with severe symptoms that

Bipolar Disorder: Manic Symptoms^{14,37}

- Severe changes in mood—either extremely irritable or overly silly and elated
- Overly-inflated self-esteem; grandiosity
- Increased energy
- Decreased need for sleep—able to go with very little or no sleep for days without tiring
- Increased talking—talks too much, too fast; changes topics too quickly; cannot be interrupted
- Distractibility—attention moves constantly from one thing to the next
- Hypersexuality—increased sexual thoughts, feelings, or behaviors; use of explicit sexual language
- Increased goal-directed activity or physical agitation
- Disregard of risk—excessive involvement in risky behaviors or activities

Bipolar Disorder: A Warning About Antidepressants and Psychostimulants

Using antidepressant medication to treat depression in a person who has bipolar disorder may induce manic symptoms if it is taken without a mood stabilizer, such as lithium or valproate.³⁷ In addition, using psychostimulant medications to treat ADHD or ADHD-like symptoms in a child or adolescent with bipolar disorder may worsen manic symptoms. While it can be hard to determine which young patients will become manic, there is a greater likelihood among children and adolescents who have a family history of bipolar disorder. If manic symptoms develop or markedly worsen during antidepressant or stimulant use, a child psychiatrist should be consulted, and treatment for bipolar disorder should be considered. Physicians should be aware of the signs and symptoms of mania so that they can educate families on how to recognize these and report them immediately.

would prevent effective psychotherapy, those who are unable to undergo psychotherapy, those with psychosis, and those with chronic or recurrent episodes. Following remission of symptoms, continuation treatment with medication and/or psychotherapy for at least several months may be recommended by the psychiatrist, given the high risk of relapse and recurrence of depression. Discontinuation of medications, as appropriate, should be done gradually over 6 weeks or longer.¹

NIMH has initiated a large-scale, controlled clinical trial at 10 sites across the U.S. to compare the long-term effectiveness of fluoxetine, CBT, and the combination of these interventions for treatment of depression in adolescents. More information about this trial, called the Treatment of Adolescents with Depression Study, and others can be found through the Clinical Trials page of the NIMH web site www.nimh.nih.gov.

Talking With Parents

It is very important for parents to understand their child's depression and the treatments that may be prescribed. Physicians can help by talking with parents about their questions or concerns, reinforcing that depression in youth is not uncommon, and reassuring them that appropriate treatment with psychotherapy, medication, or the combination can lead to improved functioning at school, with peers, and at home with family. In addition, referring the youth and family to a mental health professional and to the information resources listed at the back of this publication can help to enhance recovery.

Other Types of Depression In Children and Adolescents

■ *Bipolar Disorder*

Although rare in young children, bipolar disorder—also known as manic-depressive illness—can appear in both children and adolescents.³⁷ Bipolar disorder, which involves unusual shifts in mood, energy, and functioning, may begin with either manic, depressive, or mixed manic and depressive symptoms. It is more likely to affect the children of parents who have the disorder. Twenty to 40 percent of adolescents with major depression develop bipolar disorder within 5 years after depression onset.⁴

Existing evidence indicates that bipolar disorder beginning in childhood or early adolescence may be a different, possibly more severe form of the illness than older adolescent- and adult-onset bipolar disorder.³⁸ When the illness begins before or soon after puberty, it is often characterized by a continuous, rapid-cycling, irritable, and mixed symptom state that may co-occur with disruptive behavior disorders, particularly attention deficit hyperactivity disorder (ADHD) or conduct disorder (CD), or may have features of these disorders as initial symptoms. In contrast, later adolescent- or adult-onset bipolar disorder tends to begin suddenly, often with a classic manic episode, and to have a more episodic pattern with relatively stable periods between episodes. There is also less co-occurring ADHD or CD among those with later onset illness.

A child or adolescent who appears to be depressed and exhibits ADHD-like symptoms that are very severe, with excessive temper outbursts and mood changes, should be evaluated by a psychiatrist or psychologist with experience in bipolar disorder, particularly if there is a family history of the illness. This evaluation is especially important since psychostimulant

medications, often prescribed for ADHD, may worsen manic symptoms. There is also limited evidence suggesting that some of the symptoms of ADHD may be a forerunner of full-blown mania.³⁸

The essential treatment of bipolar disorder in adults involves the use of appropriate doses of mood stabilizing medications, typically lithium and/or valproate, which are often very effective for controlling mania and preventing recurrences of manic and depressive episodes. Treatment of children and adolescents diagnosed with bipolar disorder is based mainly on experience with adults, since as yet there is very limited data on the safety and efficacy of mood stabilizing medications in youth. Researchers currently are evaluating both pharmacological and psychosocial interventions for bipolar disorder in young people.

Valproate Use

According to studies conducted in Finland in patients with epilepsy, valproate may increase testosterone levels in teenage girls and produce polycystic ovary syndrome in women who began taking the medication before age 20.³⁹ Increased testosterone can lead to polycystic ovary syndrome with irregular or absent menses, obesity, and abnormal growth of hair. Therefore, young female patients prescribed valproate should be monitored carefully.

- ***Dysthymic disorder (or dysthymia)***
This less severe yet typically more chronic form of depression is diagnosed when depressed mood persists for at least one year in children or adolescents and is accompanied by at least two other symptoms of major depression.¹⁴ Dysthymia is associated with an increased risk for developing major depressive disorder, bipolar disorder, and substance abuse.^{4,17} Treatment of dysthymia may prevent the deterioration to more severe illness.¹ If dysthymia is

suspected in a young patient, referral to a mental health specialist is indicated for a comprehensive diagnostic evaluation and appropriate treatment.

Information Resources

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www.aacap.org

American Psychiatric Association

1400 K Street, N.W.
Washington, DC 20005
(202) 682-6000
www.psych.org

American Psychological Association

750 First Street, N.E.
Washington, DC 20002
(202) 336-5500
www.apa.org

Child & Adolescent Bipolar Foundation

1187 Willmette Avenue, PMB #331
Willmette, IL 60091
(847) 256-8525
www.bpkids.org

National Alliance for the Mentally Ill

Colonial Place Three
2107 Wilson Blvd., Suite 300
Arlington, VA 22201-3042
(800) 950-NAMI (-6264)
www.nami.org

National Depressive and Manic- Depressive Association

730 N. Franklin Street, Suite 501
Chicago, IL 60610-3526
(800) 826-3632
www.ndmda.org

National Mental Health Association

1021 Prince Street
Alexandria, VA 22314
(800) 969-NMHA (-6642)
www.nmha.org

Clinical Trials

National Institutes of Health,
National Library of Medicine's
Clinical Trials Database
www.clinicaltrials.gov

References

¹Birmaher B, Brent DA, Benson RS. Summary of the practice parameters for the assessment and treatment of children and adolescents with depressive disorders. *American Academy of Child and Adolescent Psychiatry. Journal of the American Academy of Child and Adolescent Psychiatry*, 1998; 37(11): 1234-8. See also www.aacap.org/clinical/Depres~1.htm.

²Ryan ND, Puig-Antich J, Ambrosini P, et al. The clinical picture of major depression in children and adolescents. *Archives of General Psychiatry*, 1987; 44: 854-61.

³Weissman MM, Wolk S, Goldstein RB, et al. Depressed adolescents grown up. *Journal of the American Medical Association*, 1999; 281:1701-13.

⁴Birmaher B, Ryan ND, Williamson DE, et al. Childhood and adolescent depression: a review of the past 10 years. Part I. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1996; 35(11): 1427-39.

⁵Shaffer D, Fisher P, Dulcan MK, et al. The NIMH Diagnostic Interview Schedule for Children version 2.3 (DISC-2.3): description, acceptability, prevalence rates and performance in the MECA study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1996; 35(7): 865-77.

⁶Klerman GL, Weissman MM. Increasing rates of depression. *Journal of the American Medical Association*, 1989; 261: 2229-35.

⁷Angold A, Costello EJ. Depressive comorbidity in children and adolescents: empirical, theoretical, and methodological issues. *American Journal of Psychiatry*, 1993; 150(12): 1779-91.

⁸Kovacs M. Psychiatric disorders in youths with IDDM: rates and risk factors. *Diabetes Care*, 1997; 20(1): 36-44.

⁹Shaffer D, Gould MS, Fisher P, et al. Psychiatric diagnosis in child and adolescent suicide. *Archives of General Psychiatry*, 1996; 53(4): 339-48.

¹⁰Shaffer D, Craft L. Methods of adolescent suicide prevention. *Journal of Clinical Psychiatry*, 1999; 60(Suppl 2): 70-4; discussion 75-6, 113-6.

¹¹Hoyert DL, Kochanek KD, Murphy SL. Deaths: final data for 1997. *National Vital Statistics Report*. DHHS Publication No. (PHS) 99-1120. Hyattsville: National Center for Health Statistics, 1999; 47(19). See also www.cdc.gov/ncipc/osp/states/10lc97.htm.

¹²Brent DA, Perper JA, Allman CJ, et al. The presence and accessibility of firearms in the homes of adolescent suicides. A case-control study. *Journal of the American Medical Association*, 1991; 266(21): 2989-95.

¹³Fleming JE, Offord DR. Epidemiology of childhood depressive disorders: a critical review. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1990; 29(4): 571-80.

- ¹⁴American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*. Washington, DC: American Psychiatric Press, 1994.
- ¹⁵Kovacs M, Feinberg TL, Crouse-Novak MA, et al. Depressive disorders in childhood. I. A longitudinal prospective study of characteristics and recovery. *Archives of General Psychiatry*, 1984; 41(3): 229-37.
- ¹⁶Lewinsohn PM, Clarke GN, Seeley JR, et al. Major depression in community adolescents: age at onset, episode duration, and time to recurrence. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1994; 33(6): 809-18.
- ¹⁷Klein DN, Schwartz JE, Rose S, et al. Five-year course and outcome of dysthymic disorder: a prospective, naturalistic follow-up study. *American Journal of Psychiatry*, 2000; 157(6): 931-9.
- ¹⁸Children's Depression Inventory. Developed by Kovacs M. Available from Multi-Health Systems (MHS, Inc.), 65 Overlea Blvd., Suite 10, Toronto, Ontario M4H1P1 Canada; phone: 800-456-3003.
- ¹⁹Beck Depression Inventory. Developed by Beck A. Available from Psychological Corporation, 555 Academic Court, San Antonio, TX 78204; phone: 210-299-1061.
- ²⁰Center for Epidemiologic Studies Depression Scale. Developed by NIMH. Available from NIMH, 6001 Executive Boulevard, Room 8184, MSC 9663, Bethesda, MD 20892-9663; phone: 301-443-4513.
- ²¹Harrington R, Rutter M, Weissman MM, et al. Psychiatric disorders in the relatives of depressed probands. I. Comparison of prepubertal, adolescent and early adult onset cases. *Journal of Affective Disorders*, 1997; 42(1): 9-22.
- ²²Lewinsohn PM, Rohde P, Seeley JR. Major depressive disorder in older adolescents: prevalence, risk factors, and clinical implications. *Clinical Psychology Review*, 1998; 18(7): 765-94.
- ²³Wells VE, Deykin EY, Klerman GL. Risk factors for depression in adolescence. *Psychiatric Development*, 1985; 3(1):83-108.
- ²⁴Monroe SM, Rohde P, Seeley JR, et al. Life events and depression in adolescence: relationship loss as a prospective risk factor for first onset of major depressive disorder. *Journal of Abnormal Psychology*, 1999; 108(4): 606-14.
- ²⁵Spencer T, Biederman J, Wilens T. Attention-deficit/hyperactivity disorder and comorbidity. *Pediatric Clinics of North America*, 1999; 46(5): 915-27, vii.
- ²⁶Brown J, Cohen P, Johnson JG, et al. Childhood abuse and neglect: specificity of effects on adolescent and young adult depression and suicidality. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1999; 38(12): 1490-6.
- ²⁷Krug EG, Kresnow M, Peddicord JP, et al. Suicide after natural disasters. *New England Journal of Medicine*, 1998; 338(6): 373-8.
- ²⁸Jayson D, Wood A, Kroll L, et al. Which depressed patients respond to cognitive-behavioral treatment? *Journal of the American Academy of Child and Adolescent Psychiatry*, 1998; 37(1): 35-9.
- ²⁹Reinecke MA, Ryan NE, DuBois DL. Cognitive-behavioral therapy of depression and depressive symptoms during adolescence: a review and meta-analysis. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1998; 37(1): 26-34.
- ³⁰Brent DA, Holder D, Kolko D, et al. A clinical psychotherapy trial for adolescent depression comparing cognitive, family, and supportive therapy. *Archives of General Psychiatry*, 1997; 54(9): 877-85.
- ³¹Mufson L, Weissman MM, Moreau D, et al. Efficacy of interpersonal psychotherapy for depressed adolescents. *Archives of General Psychiatry*, 1999; 56(6): 573-9.
- ³²Depression Guideline Panel. *Clinical practice guideline, number 5. Depression in primary care: volume 2. Treatment of major depression*. AHCPR Publication No. 93-0551. Rockville: U.S. Department of Health and Human Services, Agency for Health Care Policy and Research, 1993.



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- ³³Emslie GJ, Rush AJ, Weinberg WA, et al. A double-blind, randomized, placebo-controlled trial of fluoxetine in children and adolescents with depression. *Archives of General Psychiatry*, 1997; 54(11): 1031-7.
- ³⁴Keller M. Paroxetine and imipramine in the treatment of adolescent depression. Presented at the 151st Annual Meeting of the American Psychiatric Association, Toronto, June 1998.
- ³⁵Geller B, Cooper TB, Graham DL, et al. Pharmacokinetically designed double-blind placebo-controlled study of nortriptyline in 6- to 12-year-olds with major depressive disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1992; 31(1): 34-44.
- ³⁶Geller B, Reising D, Leonard HL, et al. Critical review of tricyclic antidepressant use in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1999; 38(5): 513-6.
- ³⁷McClellan J, Werry J. Practice parameters for the assessment and treatment of children and adolescents with bipolar disorder. American Academy of Child and Adolescent Psychiatry. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1997; 36(Suppl 10): 157S-76S.
- ³⁸Geller B, Luby J. Child and adolescent bipolar disorder: a review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1997; 36(9): 1168-76.
- ³⁹Vainionpaa LK, Rattya J, Knip M, et al. Valproate-induced hyperandrogenism during pubertal maturation in girls with epilepsy. *Annals of Neurology*, 1999; 45(4): 444-50.

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