

Depression: A Review

Harmanpreet Kaur*, Rajesh Kumar, Ajeet Pal Singh, Amar Pal Singh, & Meenakshi Malhotra

Department of Pharmacy. St. Soldier Institute of Pharmacy, Lidhran Campus, Behind NIT, (R.E.C.), Jalandhar-Amritsar Bypass NH-1. Jalandhar-144011, Punjab, India.

Abstract

Depression is a mental health condition that affects how people think, feel and handle daily activity. This abstract provides an explanation of depression, covering its definition, causes, symptoms, diagnosis and treatment options. Depression can make people feel sad, hopeless, uninterested in things they used to enjoy. It can affect sleep, appetite, energy level concentration. Various factor including biology, environment, life events, can contribute to development depression. Diagnose involved talking to healthcare profession about symptom and feelings. Treatment may include therapy, medication, lifestyle changes and support for love ones.

Keyboard: Depression, classification, cause and risk factor treatment

Introduction

Depression is psychological condition, which can affect various aspects of a person's life including their thoughts, behavior, motivation. It can occur for a short period or longer. Depression varies in severity and can be triggered by a combination of genetic, biological, environmental, and psychological factors. Seeking support from a mental health professional is crucial for diagnosis and treatment.[1]

Types of depression

1. Major Depressive Disorder (MDD): Characterized by persistent feelings of sadness, hopelessness, and a loss of Interest or pleasure in activities. Symptoms that last for at least two weeks. Major depressive disorder (MDD), often simply referred to as depressions. It can affect how you feel, think, and handle daily activities, and it can also lead to various emotional and physical problem. MDD can be triggered by a combination of genetic, biological, environmental, and psychological factors. It's essential to seek professional help if you or someone you know is experiencing symptoms of

depression, as it can be effectively treated with therapy, medication, or a combination of both. Therapy may include cognitive-behavioral therapy (CBT), interpersonal therapy (IPT), or other types of psychotherapy. Medications such as antidepressants can help alleviate symptoms by balancing brain chemicals called neurotransmitters.[2]

2. Persistent Depressive Disorder (PDD): Persistent Depressive Disorder (PDD) can have various contributing factors, including genetic predisposition, brain chemistry, personality traits, and life circumstances such as trauma or chronic stress. It's often characterized by a persistent feeling of sadness or emptiness, hopelessness, fatigue, and difficulty experiencing pleasure in daily activities. People with PDD may also have periods of major depression interspersed with milder symptoms.

Diagnosis of PDD involves a thorough assessment by a mental health professional, including a review of symptoms, medical history, and sometimes psychological testing. Treatment

typically involves a combination of psychotherapy, such as cognitive-behavioral therapy (CBT) or interpersonal therapy, and antidepressant medications. Additionally, lifestyle changes like regular exercise, healthy eating, stress management etc.[3]

3. Bipolar Disorder: Bipolar disorder is divided into several types, including Bipolar I Disorder, Bipolar II Disorder, and Cyclothymic Disorder. Bipolar I Disorder involves manic episodes that last at least 7 days or are severe enough to require immediate medical care. Depressive episodes typically occur as well, lasting at least 2 weeks. Bipolar II Disorder involves a pattern of depressive episodes and hypomanic episodes, which are less severe than manic episodes. Cyclothymic Disorder involves periods of hypomanic symptoms as well as periods of depressive symptoms lasting for at least 2 years (1 year in children and adolescents).

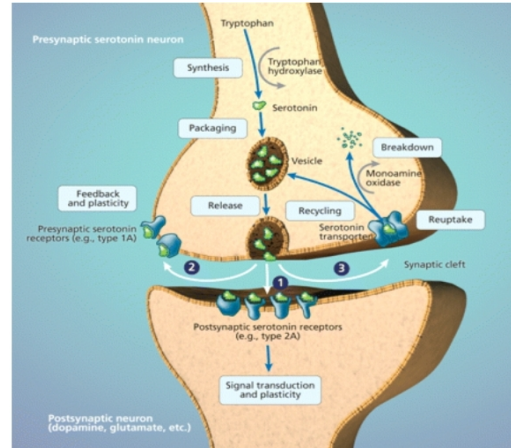
Effective management often involves a combination of medication, such as mood stabilizers, antipsychotics, and antidepressants, along with psychotherapy and lifestyle adjustments. [4]

4. Seasonal Affective Disorder (SAD): Seasonal Affective Disorder (SAD) is a type of depression that typically occurs during the fall and winter months when daylight hours are shorter. Symptoms can include low energy, difficulty concentrating, changes in appetite, and feelings of sadness or hopelessness. Light therapy, counseling, and medication are common treatments. If you suspect you may have SAD, it's important to consult with a healthcare professional for an accurate diagnosis and appropriate treatment plan.[5]

5. Postpartum Depression: Postpartum depression (PPD) is when a new mom feels sad, anxious, or overwhelmed after giving birth. It's more serious than the "baby blues" and can affect how she cares for herself and her baby. Treatment, like therapy or medication, can help her feel better. Support from family and friends is also important. If you or someone you know is experiencing PPD symptoms, talking to a doctor is a good idea.[6]

6. Psychotic Depression: Psychotic depression is a severe form of depression that includes psychotic symptoms, such as hallucinations (seeing or hearing things that aren't real) or delusions (false beliefs). People with psychotic depression may experience depressive symptoms like sadness, hopelessness, and changes in appetite or sleep, along with these psychotic features. It's crucial to seek prompt treatment for psychotic depression, typically involving a combination of medication and therapy, to help manage symptoms and improve quality of life. If you or someone you know is experiencing symptoms of psychotic depression, it's essential to reach out to a healthcare professional for help and support.[7]

7. Situational Depression: Situational depression happens when someone feels down due to specific life events, like a breakup or job loss. It's a normal reaction to tough situations, but it's essential to seek support from friends, family, or a counselor to cope and feel better. With time and support, most people can overcome situational depression and get back to feeling like themselves.[8]



MECHANISM OF ACTION

Depression Is associated with changes in the level of neurotransmitters in the brain that help nerve cells to communicate. E.x Serotonin, Dopamine, Nor epinephrine. The level can be influenced by physical illness, genetics, substance abuse, diet, hormonal chnages, brain injuries or social circumstances.

Signs and Symptoms of Depression

Depression manifests in various ways, but its hallmark signs and symptoms include persistent feelings of sadness, hopelessness, and disinterest in activities once enjoyed. Individuals may experience changes in appetite, sleep disturbances, and a lack of energy. Concentration difficulties and indecisiveness are common, accompanied by feelings of worthlessness or guilt. Physical symptoms like headaches and digestive issues may also arise. In severe cases, thoughts of death or suicide may occur. It's crucial to recognize these symptoms early and seek support from healthcare professionals. With proper diagnosis and treatment, individuals can manage depression and improve their quality of life. Symptoms of depression in adult is undiagnosed. Additional symptoms of depression in adults and teens:

1. Withdrawal from social activities, family, and friends.
2. Persistent feelings of anxiety or agitation.
3. Decreased libido or sexual dysfunction.

4. Self-harming behaviors.

5. Difficulty in school or work performance.

6. Increased substance abuse (e.g., alcohol or drugs).

7. Changes in personal hygiene or appearance.

8 Feeling emotionally numb or disconnected from others.

9. Experiencing frequent mood swings.

Causes of depression

Depression doesn't have a single cause, but rather, it's typically the result of a combination of factors. These can include:

Biological Factors: Imbalances in neurotransmitters, such as serotonin and dopamine, can contribute to depression. Genetics can also play a role, as depression often runs in families.

Psychological Factors: Certain personality traits, such as low self-esteem or a pessimistic outlook, can increase the risk of depression. Additionally, experiencing trauma or stressful life events, such as abuse, loss of a loved one, or financial difficulties, can trigger depression in susceptible individuals.

Environmental Factors: Factors such as chronic stress, social isolation, or significant life changes (such as moving to a new city or starting a new job) can contribute to the development of depression.

Medical Conditions: Certain medical conditions, such as chronic illness, hormonal imbalances, or chronic pain, can increase the risk of depression. Additionally, some medications, such as certain corticosteroids or beta-blockers, may have depression as a side effect.

Substance Abuse: Substance abuse, including alcohol and drug abuse, can exacerbate or even trigger depression.^[10]

Prevention of depression

While it's not always possible to prevent depression entirely, there are steps individuals can take to reduce their risk and promote mental well-being:

Maintain a Healthy Lifestyle: Engage in regular exercise, eat a balanced diet rich in fruits, vegetables, and whole grains, and prioritize getting enough sleep each night.

Manage Stress practice stress management techniques such as mindfulness, meditation, deep breathing exercises, or yoga to reduce stress levels and promote relaxation.

Stay Connected: Maintain strong social connections with friends, family, and community members. Make time for social activities and meaningful relationships.

Seek Support: Don't hesitate to reach out for help if you're struggling. Talk to a trusted friend, family member, or mental health professional if you're experiencing symptoms of depression or feeling overwhelmed.

Limit Alcohol and Drug Use Avoid excessive alcohol consumption and refrain from using drugs, as substance abuse can worsen symptoms of depression.

Set Realistic Goals break large tasks into smaller, manageable steps, and set realistic goals for yourself. Celebrate your achievements, no matter how small.

Stay Active: Engage in activities that bring you joy and fulfillment, whether it's a hobby, volunteering, or spending time in nature. Keep

your mind and body active to maintain a sense of purpose and accomplishment.

Monitor Your Mental Healthy Pay attention to your mental and emotional well-being. If you notice changes in your mood, behavior, or thinking patterns, seek help from a healthcare professional ^[11]

Diagnose of depression

Diagnosing depression typically involves a comprehensive evaluation by a healthcare professional, such as a doctor or psychiatrist. This evaluation may include a physical exam, a discussion of symptoms and their duration, and possibly psychological assessments. A diagnosis of depression is usually made based on the presence of specific symptoms that persist for at least two weeks and significantly impair daily functioning. It's essential to consult with a healthcare provider for an accurate diagnosis and appropriate treatment.

The diagnosis of depression typically involves several methods

Clinical Interview: A healthcare provider will conduct a thorough interview to assess symptoms, their duration, and their impact on daily life.

Physical Examination: A physical exam may be performed to rule out any underlying medical conditions that could be contributing to the symptoms.

Diagnostic Criteria: The provider will use criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) to determine if the symptoms meet the criteria for depression. **Questionnaires and Assessments:** Various standardized questionnaires and assessments may be used to help evaluate the severity of depression and monitor treatment progress

Laboratory Tests: While there are no tests for depression, blood tests may be done to rule out other medical conditions that could mimic depression symptoms, such as thyroid disorders.

psychological Evaluation: In some cases, a psychologist or psychiatrist may conduct a more in-depth psychological evaluation to assess mood, thoughts, and behaviors.[12]

Treatment of Depression

1. psychological treatments for depression:

Cognitive-Behavioral Therapy (CBT): CBT focuses on identifying and changing negative thought patterns and behaviors that contribute to depression. It helps individuals develop coping strategies, problem-solving skills, and a more balanced perspective on their experiences.

Interpersonal Therapy (IPT): IPT focuses on improving interpersonal relationships and communication skills to alleviate depressive symptoms. It explores how problems in relationships and life events may contribute to depression and works to address these issues.

Behavioral Activation (BA): BA aims to increase engagement in rewarding activities and pleasurable experiences, which can help counteract feelings of depression. It involves setting goals, scheduling enjoyable activities, and gradually increasing activity levels.

Mindfulness-Based Cognitive Therapy (MBCT): MBCT combines elements of CBT with mindfulness practices to help individuals become more aware of their thoughts and emotions without judgment. It teaches skills for managing difficult feelings and preventing relapse into depression.

Psychodynamic Therapy: psychodynamic therapy explores unconscious conflicts and past experiences that may contribute to depression. It focuses on gaining insight into how these factors influence current thoughts, feelings, and behaviors, with the goal of promoting healing and personal growth.

Supportive Therapy: supportive therapy provides a safe and nonjudgmental space for individuals to express their feelings and experiences. It offers emotional support, validation, and

encouragement, which can be helpful for managing depression.

These approaches can be used individually or in combination, depending on the needs and preferences of the individual. The effectiveness of psychological treatment for depression often depends on factors such as the individual's motivation, the quality of the therapeutic relationship, and the skill of the therapist.[12]

2. Pharmacology treatment

1 MAO inhibitors:

1. Irreversible: Isocarboxazid, Iproniazid, Phenelzine and Tranylcypromine.

2. Reversible: Moclobemide and Clorgyline.

2. Tricyclic antidepressants (TCAS)

1. NA and 5 HT reuptake inhibitors: Imipramine, Amitriptyline, Doxepin, Dothiepin and Clomipramine.

2. NA reuptake inhibitors: Desimipramine, Nortriptyline

3. Selective Serotonin reuptake inhibitors: Fluoxetine, Fluvoxamine, Sertraline and Citalopram

4. Atypical antidepressants: Trazodone, Mianserin, Mirtazapine, Venlafaxine, Duloxetine, Bupropion [13]

Tricyclic anti depressant:

Tricyclic antidepressants (TCAs) were among the first antidepressants developed and were widely used in the mid- 20th century. They are called "tricyclic" because of their three-ring chemical structure. TCAs work by blocking the reuptake of neurotransmitters such as serotonin and norepinephrine, which helps to increase their levels in the brain. Some common tricyclic antidepressants include: Amitriptyline (Elavil)

Imipramine (Tofranil)

Nortriptyline (Pamelor)

Desipramine (Norpramin)[4]

Atypical antidepressants:

Atypical antidepressants are a class of medications used to treat depression that don't fit neatly into other category like SSRIs or tricyclics. Examples include bupropion (Wellbutrin), mirtazapine (Remeron), and trazodone.[15]

Monoamine oxidase inhibitors

Monoamine oxidase inhibitors (MAOIs) are a class of medications primarily used to treat depression. They work by inhibiting the activity of the enzyme monoamine oxidase, which breaks down neurotransmitters like serotonin, dopamine, and norepinephrine in the brain. By blocking this enzyme, MAOIs increase the levels of these neurotransmitters, which can alleviate symptoms of depression. Examples of MAOIs include phenelzine, tranylcypromine, and isocarboxazid.[16]

Other antidepressants

1. Norepinephrine and dopamine reuptake inhibitors (NDRIs): These medications, such as Reboxetine, primarily target the reuptake of norepinephrine and dopamine.

2. Noradrenergic and specific serotonergic antidepressants (NaSSAs): Mirtazapine is an example of a NaSSA, which works by enhancing the release of both norepinephrine and serotonin while blocking certain serotonin receptors.

3. Serotonin antagonist and reuptake inhibitors (SARIs): Trazodone is a SARI that works by blocking serotonin receptors and inhibiting serotonin reuptake.[17]

Herbal drug used in the treatment of depression

.St. John's Wort: This herb has been extensively studied for its antidepressant properties. It's believed to work by increasing levels of serotonin, dopamine, and norepinephrine in the brain. However, it can interact with a variety of medications, including antidepressants, birth control pills, and blood thinners, so it's important to use it under the guidance of a healthcare professional.

Lavender: Lavender is often used for its calming and relaxing effects. Some studies suggest that inhaling lavender essential oil or taking lavender supplements may help alleviate symptoms of mild to moderate depression.

Chamomile: Chamomile is another herb known for its calming effects. While it's more commonly used to promote relaxation and sleep, some research suggests that it may also have antidepressant properties. Chamomile tea is a popular way to consume this herb.

Ginseng: Ginseng is an adaptogenic herb that is believed to help the body adapt to stress. Some research suggests that it may have antidepressant effects by modulating the release of certain neurotransmitters in the brain. However, more studies are needed to fully understand its effectiveness for depression.[18]

Disease caused by depression

Cardiovascular disease: Depression can increase the risk of heart disease and stroke due to changes in heart rate, blood pressure, and circulation.

Immune system suppression: prolonged depression can weaken the immune system, making individuals more susceptible to infections and illnesses.

Gastrointestinal problems: Depression can contribute to digestive issues like irritable bowel syndrome (IBS), stomach ulcers, and inflammation.

Chronic pain: Depression can intensify or prolong physical pain, and it's often associated with conditions like fibromyalgia and chronic fatigue syndrome.

Sleep disorders: Depression can disrupt sleep patterns, leading to insomnia or oversleeping, which in turn can exacerbate both mental and physical health problems.[19]

Reference:

1. Rake Re. Depression. Prim Care. 1999 Jun;26(2):211-24. Doi: 10.1016/s0095-4543(08)70003-4. PMID: 10318745.

2. NOBIS, Alexander; ZALEWSKI, Daniel; WASZKIEWICZ, Napoleon. Peripheral markers of depression. *Journal of clinical medicine*, 2020, 9.12: 3793.
3. Beck AT, Alford BA. *Depression: Causes and treatment*. University of Pennsylvania Press; 2009 Mar 25
4. McIntyre RS, Calabrese JR. Bipolar depression: the clinical characteristics and unmet needs of a complex disorder. *Curr Med Res Opin*. 2019 Nov;35(11):1993-2005. Doi: 10.1080/03007995.2019.1636017. Epub 2019 Aug 5. PMID: 31311335.
5. Melrose, S. (2015). Seasonal affective disorder: an overview of assessment and treatment approaches. *Depression research and treatment*, 2015.
6. Miller, Laura J. "Postpartum depression." *Jama* 287.6 (2002): 762-765.
7. Dubovsky SL, Ghosh BM, Serotte JC, Cranwell V. Psychotic Depression: Diagnosis, is Differential Diagnosis, and Treatment. *Psychother Psychosom*. 2021;90(3):160-177. Doi: 10.1159/000511348. Epub 2020 Nov 9. PMID: 33166960.
8. Hirschfeld, R. M. (1981). Situational depression: validity of the concept. *The British Journal of Psychiatry*, 139(4), 297-305.
9. COSTELLO, Charles G. *Symptoms of depression*. John Wiley & Sons, 1993. BECK, Aaron T.; ALFORD, Brad A. *Depression: Causes and treatment*. University of Pennsylvania Press, 2009.
10. Beck, A. T., & Alford, B. A. (2009). *Depression: Causes and treatment*. University of Pennsylvania Press.
11. Hollon, S. D., Thase, M. E., & Markowitz, J. C. (2002). Treatment and prevention of depression. *Psychological Science in the public interest*, 3(2), 39-77.
12. Evans, M., & Mottram, P. (2000). Diagnosis of depression in elderly patients. *Advances in psychiatric treatment*, 6(1), 49-56.
13. O'Connor MK., Knapp. Husain M., et al. The influence of age on the response of major depression to electroconvulsive therapy: a C.O.R.E. Report. *Am J Geriatr Psychiatry*
14. Thomas McCarter, depression overview, American health& drug benefits 2017 & christopher frank, pharmacologic treatment of depression in the elderly, vol 60, 2014
15. MORACZEWSKI, Jordan; AEDMA, Kapil K. Tricyclic antidepressants. In: *StatPearls [Internet]*. StatPearls Publishing, 2022.
16. Juruena, Mario F., et al. "Atypical depression and non- atypical depression: Is HPA axis function a biomarker? A systematic review." *Journal of affective disorders* 233 (2018): 45-67.
17. Quitkin, F., Rifkin, A., & Klein, D. F. (1979). Monoamine oxidase inhibitors: A review of antidepressant effectiveness. *Archives of General Psychiatry*, 36(7), 749-760.
18. Schwasinger-Schmidt, T. E., and M. Macaluso. "Other antidepressants." *Antidepressants: From Biogenic Amines to New Mechanisms of Action* (2019): 325-355
19. Fathinezhad, Zohre, et al. "Depression and treatment with effective herbs." *Current pharmaceutical design* 25.6 (2019): 738-745..
20. MIYOSHI, Koho. Depression associated with physical illness. *Japan Medical Association Journal*, 2001, 44.6: 279- 282.