The Critical Overview and Provisions of a Survivor in the Depressive Condition

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Abstract
Depression is a psychotic disorder that can lead to emotional and psychological problems, including depressed mood, loss of interest or pleasure, losing energy and concentration, worthlessness feelings or inappropriate responsibility, loss of appetite and libido, insomnia, and persistent thoughts of death or suicide. The foremost reasons behind this deficiency of monoamine transmitters' Serotonin, Noradrenaline, Dopamine. There are various types of factors leading to depression such as social, economic, cultural and environmental factors. The massive quantity of synthetic drugs used for quick action as treat depressive conditions. In advance period of serious obsession with the modern medication system, people have strong believes on the ancient medication systems such as Ayurveda, Siddha, and Unani management because of the herbal drugs that may produced very slight adverse effects. This article also discussed the global burden of depression, pathophysiology, diagnosis and management of various types of depression.

Keywords: Depression; MAO-A; Noradrenaline; Serotonin; Major depressive disorder

Introduction
Depression is a kind of psychological disorder that causes changes in mood, thoughts, behavior and physical health [1]. Among the worldwide listing of diseases, depression is one of the top five diseases. Globally, it is estimated to be the second-leading causes of disability till the year 2020. Earlier studies have shown that about 80% to 90% of peoples suffered from the depression reported as symptoms of anxiety [2-4].

World Health Organization estimated that around 350 million individuals have been affected by major depressive disorders [5]. Lifetime prevalence rates of major depressive disorders as high as 25% for females and an estimated lifetime prevalence rate of 12% for males in US population as estimates through the Diagnostic and Statistical Manual of Mental Disorders [6].

Types of depression
The types of depression are explained as follow:

- Major depressive disorder
- Persistent depression
- Depressive psychosis
- Perinatal depression
- Premenstrual dysphoric disorder
- Seasonal depression
- Situational depression
- Atypical depression

Major depressive disorder: It is a normal type of psychiatric disease with rates of non-responsiveness to antidepressants. As per NMHS (2015) in India one out of twenty people above 18 years of age suffered from major depressive disorder [7].

Persistent depressive disorder: It is chronic depression and lasts for two years or takes more time. Persistent depression might not feel as intense as major depression, but it can still strain relationships and make difficult in daily tasks [8,9].
Depressive psychosis: Some people with major depression have also gone through periods of losing touch with reality called as psychosis. It can involve hallucinations and delusions, in cooperation of these together is consider as the major depressive disorder [10].

Perinatal depression: This type of depression is peripartum onset, occurs during pregnancy or within four weeks of childbirth. It’s often called postpartum depression but only applies to depression after giving birth [11]. Depression during pregnancy and after childbirth adversely affects the growth and development of the progeny. In case of hormonal changes that occur during pregnancy and childbirth can trigger change in the brain leading to mood swings [12,13].

Premenstrual dysphoric disorder (PMDD): This disease is a type of Premenstrual Syndrome (PMS) having both physical and psychological symptoms; collectively PMDD symptoms tend to be mostly psychosomatic [14].

Seasonal depression/affective disorder: This type of depression is related to seasonal changes. The majority of people tend to happen during the winter season. Symptoms often begin in the fall, as days start to get shorter and continue through the winter [15].

Situational depression: This type of disorder is very common in primary care, but epidemiological studies reported that the rates of this disorder ranging from 1% to 18% among people with mental health problems [16].

Atypical depression (AD): It refers to depression that temporarily goes away in response to positive events [17]. According to West and Dally the first definition of AD as a preferentially Monoamine Oxidase Inhibitor (MAOI) responsive [18].

Sign and symptoms
Depresdency, gloom or grief, difficulty in sleeping or sleeping too much, lack of energy and fatigue, loss of appetite or overeating, loss of interest in formerly pleasurable activities, loss of concentration and inability to make decisions, feelings of hopelessness, constant worry & anxiety, thoughts about self-harm, and suicidal tendency [19,20].

Epidemiology
Depression is a widespread disorder that is widely distributed through society in all ages and socio-economic classes in the entire population across the world and 450 million people suffer from several types of mental or behavioral related disorders [21]. The lifetime rate of depression is to be high as 14% to 17% and the one-year prevalence is 4% to 8%. Another hand the rate of major depressive disorder among women are 10% to 25% and for men 5% to 12% [22]. The depression is more common in females than males, in young adults than elderly people and in less-educated and lower-income populations [23,24].

Globally, depression is the principal provider to non-fatall health loss, accounting for 7.5% of global Years Lived with Disability (YLDs) and 2.0% of global Disability-Adjusted Life Years (DALYs) in 2015. Depressive disorders accounted for almost 1/3 of the total DALYs caused by mental and substance use disorder (Figure 1). It is estimated to be the second leading cause of disease burden globally and the third leading cause of disease burden in Low and Middle Income Countries (LMICs) by 2030 as per Global Health Estimates 2015 [25].

Burden of depression in India
In India about 57 million people (estimate globally around 18%) affected by depression [26]. The Indian depression survey reported that in between 1990 and 2013 the burden of depression, increased by 67% Near to 2025, DALYs attributable to depression is predictable to rise roughly 2.6 million (22.5%) due to increasing population growth and aging [27,28]. According to the population-based studies, it is expected that the problem of depression is much higher ranging from 1.8% to 39.6% [29-33].

Mortality rate through depression
Mortality rate of people having depression is much more (1.52 times) than the general population, this suffering is due to untreated mental or awful physical health condition [34]. In addition, studies of depression have shown the probability of deaths from suicide among whose suffer from depressed hospitalized patients to be 15%. Certain condition and particular risk groups are also increased this rate as in the case of farmer suicides [35,36].

Risk factors associated with depression
There are multiple factors responsible for depression with complex mechanisms having no single identifiable cause. Evidence revealed that several biological, social, economic, cultural and environmental factors showing faulty adaptation in any individual responsible for depression (Figure 2). One thing may also develop depression in any person due to the loss of a loved one, or it may clarify in the background of multiple social or financial tensions [37].

Biological factors related to depression: It depend on two biological factors, one is genetic factors and other non-genetic or environmental factors [38]. A significant relationship between genetic vulnerability to depression and early childhood disturbing experiences is known to exist [39].

Psychological factors related to depression: Psychological factors depend on familial background i.e., contact to unhelpful parental influences such as a critical parental style during early childhood may give rise to negative feelings about their self. The long-term consequences of partition or early loss of the maternal attachment relationship may include depression [40].

Social factors related to depression: Distress social relationships such as familial, marital and parental relationships have been connected with the commencement depression [39]. Familial and intimate partner violence among women is the most common in India and other low and middle income countries [41,42]. The existing impact of modernization, urbanization, migration, globalization and ensuing loss of family and social support systems, leading to social isolation [43].

Cultural factors related to depression: Culture plays an important role in the depression, such as religious conviction, caste, beliefs, attitudes, interpretations and symptom thresholds, which diverge across people with depression often, have features related to various socio-cultural [44].

Financial factors related to depression: Person suffering from acute (sudden economic crisis) or chronic (poor income households) financial contraintries are more liable to developing depression like behaviors or depression [45].

Pathophysiology
This is based on measurement of various types of indirect markers,
Neural circuitry of depression

In the pathogenesis of depression, the Nucleus Accumbens (NAc) and the Ventral Tegmental Area (VTA) play an important role in depression condition? Both NAc and VTA are situated in the mesolimbic dopamine system. These brain regions mediate the recompense response to congenital stimuli such as food, sex, and drugs and dysfunction in compensate circuit of brain [46-48].

Stress response circuits

In this theory, the constant pressure and hyperactivity of the Hypothalamic-Pituitary-Adrenal (HPA) axis is causing chronic hypercortisolism. The structural and functional brain abnormalities have been recognized in depressed patients with elevated levels of corticosteroids. There are two region of brain are effected, one is Amygdala involved in largely flexible emotional reaction and to corticosteroids in the hippocampus held to use as an inhibitory signal to the HPA axis [51].

Alteration of an Antioxidant system in brain

The long time stress has been exposed to modify the expression of such types of genes regulating antioxidant systems, such as Superoxide Dismutase (SOD), catalase, glutathione peroxidase, glutathione reductase, and NADPH oxidase [52].

The biogenic monoamine theory

The any types of dysfunction occur in the serotonergic system that has been leads to mood and anxiety disorders. The first antidepressant drugs worked by reviving the diminished monoamine activity in the brain, which is originate by this biogenic monoamine hypothesis worked by reviving the diminished monoamine activity in the brain [53,54].

Inflammation and depression

The current popularity affected by inflammatory depression disorder reported that the pro-inflammatory (IL6, IL1 CRP, TNF-α) marker level is to be elevated as in compare normal range in human. An increase in pro-inflammatory cytokines results in a lack of neuronal plasticity neurodegeneration. In the laboratory scale the depression can be induced in the animal model by administration of (IFN)-α, which is central inflammatory cytokine that has been shown to produce depression [55-57]. The pro-inflammatory can also interfere with the activity of growth factors which result in reduced neurogenesis as the immune changes can damage glial cells of the brain and neurons [58].

Neurotrophic hypothesis

The neurotrophic factors are fundamental molecular controller of neuronal development and flexibility. Various types of neurotrophic factors are responsible for degenerate of certain prefrontal cortex areas and hippocampal area in depressed patient. In addition to decreased levels of NGF, BDNF [59-62].

Hormones and depression

Thyroid hormones: In the neurodegenerative and psychiatric conditions the Thyroid Hormones (TH) are imbalances. Thyroid hormones are playing an essential role in the brain development, maturation and have been shown to promote neurogenesis, in the hippocampus region. Hypothyroidism is associated to depressive-like symptoms in that it impaired hippocampus neurogenesis [63,64].

Estrogen involvement: Low estrogen level in the menstrual cycle can cause depression in female vulnerability and may occur in the postpartum and after the onset during the menopause. Estrogen hormone is modulating mood by growing the rate of deprivation of MAO and intraneuronal 5-HT transport system [65,66].

Vasopressin and depression: The level of arginine and vasopressin hormone is to be high in patients then the patient suffering from mental disorder [67]. Arginine and vasopressin played an important role in the regulation of depression response, one of the major features of depression, which work together with chronic renal failure at the elevated level in the pituitary to control the release of ACTH. High arginine vasopressin concentrations were also linked with psychomotor and mental retardation with the major depressive disorder in the depressed patient [68-70].

Allegation of the circadian rhythm in depression: The diminished stage of melatonergic signaling in the brain is due to delayed circadian rhythm leads to depression, the patients may clear with late onset of sleep, complexity in maintenance of sleepiness and early morning awakening. This given a way to the discovery of new antidepressant agent, agomelatine, which acts on melatonin and serotonin receptors on the suprachiasmatic nucleus. Disturbance of circadian rhythm is also proposed to make persons vulnerable to depression [71-73].

Diagnosis

Some types of questions are helps to the doctors to determine the high sever of the depression such as taking history and ask about symptoms to the patient. The Hamilton depression rating level (scale), use for the checking of depression condition.

The other diagnoses of depression are the low level of neurotransmitters serotonin, dopamine, and norepinephrine. Various things might potentially go wrong with this process in the brain physiology and lead to a neurotransmitter deficit may potentially include;

- Inadequate of the various types of neurotransmitter (serotonin) is produced.
- Inadequate receptor sites to obtain different types of the neurotransmitter.
- The neurotransmitter is being full back up rapidly into the presynaptic before it can reach receptor sites.
- Molecules that help in the formation of neurotransmitters, such as specific enzymes, may be in small supply.
If there is fall down anywhere along the pathway, neurotransmitter supplies may not be adequate as needed. Insufficient supplies may then lead to depression [74,75].

**Prevention**

There are different types of preventive tips available for the prevention of depression and mental illness. Do not drink alcohol or use illegal drugs. These substances can lead depression and may lead to thoughts of suicide in the depression patient.

There are following tips may to be help in feeling better to the depression patient:

- Get daily exercise
- Maintain good sleep habits (sleep at night)
- Attempt activities that bring pleasures
- Get involved in group activities
- Sharing feeling to someone about any topic
- Always think positively

**Treatment and Management**

Treatments and management depend on the symptoms and severity of depression. Standard treatments include pharmacotherapy, psychotherapy, and their combination. Moreover, severe and drug-resistant depression is commonly treated with ECT or Transcranial Magnetic Stimulation (TMS) [76].

**Appointment in behavioral activation using motivational interviewing**

Advise an increase in activities such as Adding 20 minutes of exercise 3 to 4 times per week

- Improving diet
- Enhance communal activities
- Participate in pleasant activities

**Pharmacotherapy**

Iproniazide is the first antidepressants drug, which was discovered by suddenly, during insightful clinical observations. Iproniazide basically developed for the treatment of tuberculosis showed mood stimulation like effects. As well as, imipramine, a suspected antipsychotic drug showed antidepressant activity (Table 1) [77-79].

**Light therapy**

Light therapy is approved by FDA, in the light therapy; basically use a light box in the dark months of the year (September to March).

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**Table 1: Allopathic treatment medication of depression.**

<table>
<thead>
<tr>
<th>Class of Antidepressant</th>
<th>Antidepressant Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Serotonin Reuptake Inhibitors (SSRI)</td>
<td>Citalopram, Escitalopram, Paroxetine, Fluoxetine</td>
</tr>
<tr>
<td>Tricyclic Antidepressant (TCA), tertiary</td>
<td>Amitriptyline Clomipramine, Imipramine</td>
</tr>
<tr>
<td>TCAs, secondary</td>
<td>Desipramine, Nortriptyline</td>
</tr>
<tr>
<td>Norepinephrine Reuptake Inhibitors (NRI)</td>
<td>Reboxetine</td>
</tr>
<tr>
<td>Serotonin-Norepinephrine Reuptake Inhibitors (SNRI)</td>
<td>Duloxetine, Venlafaxine</td>
</tr>
<tr>
<td>Monoamine Oxidase A Inhibitor (MAOI)</td>
<td>Moclobemide</td>
</tr>
<tr>
<td>Noradrenergic and Specific Serotonergic Antidepressant (NaSSA)</td>
<td>Mianserine, Mirtazapine</td>
</tr>
<tr>
<td>Norepinephrine-dopamine reuptake inhibitors</td>
<td>Bupropion</td>
</tr>
<tr>
<td>Selective serotonin reuptake enhancers</td>
<td>Tianeptine</td>
</tr>
<tr>
<td>MT1 and MT2 agonist, 5-HT2 antagonist</td>
<td>Agomelatine</td>
</tr>
<tr>
<td>Serotonin antagonist and reuptake inhibitors</td>
<td>Etoperidone, Nefazodone</td>
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</tbody>
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**Figure 2:** Risk factors associated with depression.
The light intensity is about 10,000 lux for 30 minutes in every morning. These therapy basically use for seasonal depression [80].

Electroconvulsive therapy (ECT)
ECT can get better in mood those suffering from severe depression or suicidal thoughts, that patient who cannot get enhanced with other treatments use ECT, it most effective treatment for the depression. Generally in the electroconvulsive therapy, a convulsion is induced by applying an electrical current via a wire 0.3 mm to 1 mm (width) absolute frequency is not more than 20 Hz to 120 Hz, duration of the stimulus about 0.5 sec to 8 sec to the surface of the head of the patient [81,82].

Transcranial magnetic therapy (TMS)
In this therapy used magnetic impulses to stimulate nerve cells of the brain. Depolarization of cortical neurons by the use of magnetic current that passes via a metal coil applied to the scalp of the patient during the therapy. TMS resulting in increasing levels of dopamine and serotonin [81,83].

Herbal plants used for the treatment of depression
The herbal drugs have a rational alternative for the management and treatment of mental disorders such as insomnia, depression, and anxiety among prosperity of others. Under developing antidepressants drugs from herbal sources appear to be a realistic approach due to their beneficial effects and lower side effects. Hypericum perforatum was commonly known as St. John’s wort is the single herbal antidepressant that has been approved for the clinical management of mild to moderate cases of depression. Hypericin and hyperforin are flavonoids which are already being there in hypericum that are claimed to be responsible for the antidepressant activity [84]. Herbal treatment still remains to be the first line treatment option for nearly 80% of the population. Plants such as Justicia odor, Whittiana somnifera, Calpurnia aurea, and Asparagus leptocladodius have traditionally been used for the treatment of depression [85].

Conclusion
The study concluded that the depression is a major burden for the health-care system worldwide if it does not diagnose and manage initially, may alter critical condition for the survivor, and some time leads to death. The rate of major depressive disorders for lifetime is more common in women 10% to 25%, than in men 5% to 12%. The different outward appearance of depression ranges from mild to extremely severe situations as similar to psychotic depression shows symptoms such as hallucinations and delusions in patients with depressive disorder. The diverse of depression theories presented by world class physicians in respect to pathogenesis on the basis of quantitative measurement of indirect markers, investigation research study and neuro-imaging techniques. In addition, selections of best management options and treatment goals for suppression of such type of disorders have been developed over the decades with various types of therapies i.e., pharmacotherapy, psychotherapy, counseling of patients and somatic therapy frequently employed for the treatment of depression. Science ancient time, the herbal treatment medication system has been also played a significant role to manage the mental disorders.

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References


