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A Review on Depressive Disorder

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ABSTRACT
Depression has long been recognised as a prominent cause of disability and burden worldwide, thatstrongly impacts the quality of life and mental health of the families and communities left behind. Despite this prevalence the diagnosis of depression and assessment of suicide risk, due to their complex clinical characterisations, are difficult tasks, nominally achieved by the categorical assessment of a set of specific symptoms. However many of the key symptoms of either condition, such as altered mood and motivation, are not physical in nature; therefore assigning a categorical score to them introduces a range of subjective biases to the diagnostic procedure. Due to these difficulties, research into finding a set of biological, physiological and behavioural markers to aid clinical assessment is gaining in popularity. This review starts by building the case for speech to be considered a key objective marker for both conditions; reviewing current diagnostic and assessment methods for depression and suicidality including key non-speech biological, physiological and behavioural markers and highlighting the expected cognitive and physiological changes associated with both conditions which affect speech production. We then review the key characteristics; size, associated clinical scores and collection paradigm, of active depressed and suicidal speech databases. The main focus of this paper is on how common paralinguistic speech characteristics are affected by depression and suicidality and the application of this information in classification and prediction systems. The paper concludes with an in-depth discussion on the key challenges – improving the generalisability through greater research collaboration and increased standardisation of data collection, and the mitigating unwanted sources of variability – that will shape the future research directions of this rapidly growing field of speech processing research.

KEYWORDS: Depression, Suicide,Automatic assessment,Behavioural markers,Paralinguistics,Classification

I. INTRODUCTION

[1] Depression is a state of low mood and aversion to activity. It can affect a person's thoughts, behavior, motivation, feeling and sense of wellbeing. It may feature sadness, difficulty in thinking and concentration and a significant increase or decrease in appetite and time spent sleeping. People experiencing depression may have feelings of dejection, hopelessness and, sometimes, suicidal thoughts. It can either be short term or long term.

Recent studies with depressed patients in primary care settings have demonstrated that these patients have several depression-related problems such as high rates of comorbidity, low functional levels, and increased use of medical resources.

The causes of depression include complex interactions between social, psychological and biological factors. Life events such as childhood adversity, loss and unemployment contribute to and may catalyse the development of depression.

The World health organization (WHO) defines the concept of Quality of life (QOL) as 'individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. QOL is a multidimensional and multilevel concept.

Research has shown that people with depression have impaired physical, social and work functioning compared with non-depressed people, and that the impact of depression on quality of life is related to the severity of the depression.

II. TYPES OF DEPRESSION

- [2]Major depressive disorder- symptoms last longer than 2 weeks. These symptoms interfere with everyday life
- Bipolar depression- people have alternating periods of low mood and extremely high energy periods
- Perinatal and postpartum depression- perinatal depression can occur during pregnancy and upto one year after having baby.
- Persistent depressive disorder –PDD is also known as dysthymia. Symptoms are less severe. But people experience these symptoms for two years or longer.
- Psychotic depression- people have sever depressive symptoms and delusions

III. PREVALENCE – WORLD SCENARIO AND INDIAN SCENARIO

[3]Indian: Depression is the most common psychiatric disorder reported in most of the community based studies. It is also reported as one of the most common psychiatric disorder in outpatient clinic population and in subjects seen in various medical and surgical setting. It is also reported to be the most common psychiatric disorder in elderly subjects across various settings. An estimated 4.4 percent of the global population suffers from depression, according to a report released by the UN World Health Organization (WHO), which shows an 18 percent increase in the number of people living with depression between 2005 and 2015. Studies from India have also shown that life events during the period preceding the onset of depression play a major role in depression. Studies on women have also shown the importance of identifying risk factors like interpersonal conflicts, marital disharmony and sexual coercion . There is need for further study of factors like cost, attitude towards treatment, adherence, compliance. There is also a need to study the course of depressive disorders in India so as to determine the need and duration of continuation treatment. Studies should also evaluate the cost effective models of treatment which can be easily used in the primary care setting to effectively treat depression.

IV. SYMPTOMS OF DEPRESSION

[10]Depressed or low mood.
Reduced interest or pleasure in activities previously enjoyed.
Unintentional weight loss or weight gain.
Insomnia or hypersomnia.
Psychomotor agitation like restlessness, pacing, up and down.
Slowed movement and speech.
Fatigue or loss of energy.
Feelings of worthlessness, guilt or helplessness.
Impaired ability to think, concentrate or make decisions.

V. CAUSES OF DEPRESSION

i. [4]Abuse- Physical, sexual, or emotional abuse can make you more vulnerable to depression later in life.
ii. Age- People who are elderly are at higher risk of depression. That can be made worse by other factors, such as living alone and having a lack of social support.
iii. Certain medications- Some drugs, such as isotreonin (used to treat acne), the antiviral drug interferon -alpha, and corticosteroids, can increase your risk of depression.
iv. Conflict- Depression in someone who has the biological vulnerability to it may result from personal conflicts or disputes with family members or friends.
v. Death or a loss- Sadness or grief after the death or loss of a loved one, though natural, can increase the risk of depression.
vi. Gender- Women are about twice as likely as men to become depressed. No one's sure why. The hormonal changes that women go through at different times of their lives may play a role.
vii. Genes- A family history of depression may increase the risk. It's thought that depression is a complex trait, meaning there are probably many different genes that each exert small effects, rather than a single gene that contributes to disease risk. The genetics of depression, like most psychiatric disorders, are not as simple or straightforward as in purely genetic diseases such cystic fibrosis
viii. Major events- Even good events such as starting a new job, graduating, or getting married can lead to depression. So can moving, losing a job or income, getting divorced, or retiring. The syndrome of clinical depression is never just a normal response to stressful life events.
ix. Other personal problems- Problems such as social isolation due to other mental illnesses or being cast out of afamily or social group can contribute to the risk of developing clinical depression.

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x. Serious illnesses- Sometimes, depression happens along with a major illness or may be triggered by another medical condition.
xi. Substance misuse- Nearly 30% of people with substance misuse problems also have major or clinical depression. Even if drugs or alcohol temporarily make you feel better, they ultimately will aggravate depression.

VI. DEPRESSION IN ELDERLY PATIENTS

[5]Depression in the elderly is a major public health problem. Many elderly depressed patients are often inadequately treated, or depression is missed or mistaken for another disorder, such as dementia. In the elderly, depressed mood, the typical signature symptom of depression, may be less prominent than other depressive symptoms such as loss of appetite, cognitive impairment, sleeplessness, anergia, and loss of interest in and enjoyment of the normal pursuits of life.83 Somatic (physical) complaints are quite frequently the presenting symptoms in elderly depressed patients. The increased suicidal attempts present in the depressed elderly may be due to access to firearms, diminished cognitive functions, sleep disruptions, poor social interactions. Approximately every 95 minutes an elderly person commits suicide.Before initiating antidepressant treatment, a complete physical examination should be performed.

VII. DEPRESSION IN PEDIATRIC PATIENTS

Accumulating evidence indicates that childhood depression occurs quite commonly. Symptoms of depression in the young may vary from accepted diagnostic criteria and include several nonspecific symptoms such as boredom, anxiety, failing adjustment, and sleep disturbance. Data collected under controlled conditions that support the efficacy of antidepressants in children and adolescents are sparse, and no antidepressant, except fluoxetine, is FDA-approved for the treatment of depression in patients less than 18 years of age.

VIII. DEPRESSION IN PREGNANT AND LACTATING PATIENTS

Approximately 10% of pregnant women develop a serious depression during pregnancy. No major teratogenic effects are currently. Studies evaluating the development of children exposed prenatally to TCAs, fluoxetine, or nonteratogens found no important differences in the rates of prenatal complications.
If a TCA is withdrawn during pregnancy, it should be tapered gradually to avoid maternal or fetal withdrawal symptoms.

IX. DIAGNOSIS

[6]Physical exam. Your doctor may do a physical exam and ask questions about your health. In some cases, depression may be linked to an underlying physical health problem.
Lab tests- For example, your doctor may do a blood test called a complete blood count or test your thyroid to make sure it's functioning properly.
Psychiatric evaluation- Your mental health professional asks about your symptoms, thoughts, feelings and behavior patterns. You may be asked to fill out a questionnaire to help answer these questions.

Depression Dsm-5 Diagnostic Criteria

The DSM-5 outlines the following criterion to make a diagnosis of depression. The individual must be experiencing five or more symptoms during the same 2-week period and at least one of the symptoms should be either (1) depressed mood or (2) loss of interest or pleasure.

- Depressed mood most of the day, nearly every day.
- Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.
- Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day.
- A slowing down of thought and a reduction of physical movement (observable by others, not merely subjective feelings of restlessness or being slowed down.
- Fatigue or loss of energy nearly every day.
- Feelings of worthlessness or excessive or inappropriate guilt nearly every day.
- Diminished ability to think or concentrate, or indecisiveness, nearly every day.
- Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
- To receive a diagnosis of depression, these symptoms must cause the individual clinically significant distress or impairment in social, occupational, or other important areas of functioning. The symptoms must also not be a result of substance abuse or another medical condition.

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Patient Assessment Tool

Patient Assessment Tools Pharmaceutical care in the depressed patient requires specialIzed knowledge of the illness and treatments, as well as refined interviewing skills. To obtain specific information about the target symptoms of depression and to assess the therapeutic impact of psychotropic medications, effective and productive interpersonal communication is vital. The structured mental status examination is an established systematic way of assessing a patient's mental health. Many functional domains are assessed in a mental status examination. Through this structured interview, the clinician has an observational basis for evaluating a patient's appearance, behavior, speech, mood, affect.

Lifestyle Adjustments

Lifestyle Adjustments Any therapeutic approach to mood disorders should seek to reverse unhealthy or destructive lifestyle habits and consider other activities that may relieve stress and facilitate well-being. Alcohol, recreational drug use, and excessive caffeine consumption should be minimized (if not prohibited) in patients suffering from depression or anxiety disorders. Sleep habits should be evaluated and improved to ensure optimal rest. This also promotes the restoration of normal physiological and immunologic processes that can ward off chronic illness. Dietary factors should be modified to promote diverse, balanced, and nutritional eating habits.

X. PHARMACOLOGICAL TREATMENT

Drugs Used In The Treatment Of Depression:

[7]**1.Selective serotonin reuptake inhibitors:**

SSRIs are the most commonly prescribed class of antidepressants. They are highly effective and generally well tolerated compared to other types of antidepressants. Side effects of SSRIs may include nausea, vomiting, diarrhoea, sexual dysfunction, headache, weight gain, anxiety, dizziness, dry mouth, and insomnia. Caution should be used when prescribing SSRIs alongside other drugs that increase the risk of bleeding. SSRIs should not be used in patients with poorly controlled epilepsy or in patients entering manic phase. Common shared side-effects (often dose-related) include abdominal pain, constipation, diarrhea, dyspepsia, nausea and vomiting. An uncommon, but potentially serious side-effect is serotonin syndrome.

Drugs: Citalopram- used to manage depressive illness and panic disorder.
Dose: 20 to 40 mg orally once a day
Fluvoxamine- used to manage depressive illness and obsessive-compulsive disorder
Dose: 50 mg orally once a day at bedtime

2.Selective serotonin and norepinephrine re-uptake inhibitors (SNRIs)

SSRI inhibit reuptake mechanism and make more 5HT available for action.
Drugs: Venlafaxine- indicated for major depression, generalized anxiety disorder and social anxiety disorder
Dose: 37.5 mg orally twice a day OR 25 mg orally 3 times a day
Levomilnacipran -used to treat major depressive disorder.
Dose: 20 mg orally once a day for 2 days, then increase to 40 mg orally once a day

3.Tricyclic antidepressants (TCAs) and related antidepressants

TCAs share a similar chemical structure and biological effects. TCAs block the re-uptake of both serotonin and noradrenaline, although to different extents.
Drugs:Imipramine hydrochloride – used for depressive illness and nocturnal enuresis.
Dose: 100 mg orally once a day, increasing to 200 mg/day if necessary
Trimipramine- used to treat depressive illness. Trimipramine is also a serotonin 5-HT_2 receptor antagonist.
Dose: 75 mg orally per day in divided doses

4.Monoamine oxidase inhibitor antidepressants (MAOIs)

MAOIs block the activity of monoamine oxidase, an enzyme that breaks down norepinephrine, serotonin, and dopamine in the brain and other parts of the body.
MAOIs are used much less frequently than tricyclic and related antidepressants, or SSRIs and related antidepressants because of the dangers of dietary and drug interactions.
MAOIs exhibit some benefit for phobic patients and depressed patients with atypical, hypochondriacal, or hysterical features, but should only be prescribed by specialists.
Drugs:
Isocarboxazid, phenelzine and tranylcypromine are non-selective, irreversible MAOIs, used to manage depressive illness.

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Dose: 10 mg orally BD

5.Atypical antidepressants

Atypical antidepressants affect the levels or effects of dopamine, serotonin, and norepinephrine in the brain.

Drugs:Bupropion- used to aid smoking cessation in combination with motivational support in nicotine-dependent patients. This drug should not be used in patients with seizure disorders, eating disorders, and within 2 weeks of using MAOI.

Dose: 100 mg orally TDS

Mirtazapine- a presynaptic α_2-adrenoceptor and serotonin 5-HT_2 receptor antagonist which increases central noradrenergic and serotonergic neurotransmission. Used to manage major depression.

Dose: 15 to 45 mg orally once a day

Nefazodone - a serotonin 5-HT_2 receptor antagonist also inhibiting serotonin and norepinephrine.

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XI. NONPHARMACOLOGICAL TREATMENT

[8]Antidepressant medications such as selective serotonin reuptake inhibitors (SSRIs), the most commonly used drugs for depression, are usually the first-line treatment, along with talk therapy.

While antidepressants have certainly helped many people manage their symptoms, the poor response rate makes it clear that alternatives are needed. But before trying to figure out what kind of treatment to opt for, make sure you're covering your self-care basics, including regular exercise, adequate sleep, and proper nutrition as all three of these can have an influence on depression.

1.Cognitive Behavioral Therapy (CBT): Psychotherapy teaches patients new skills that can help them take control of their symptoms and manage stress better, and research suggests that it works as well as antidepressant medication and may benefit patients for a longer period of time after treatment ends.

A main goal of CBT is to help patients change negative behaviors and ways of thinking that are linked to depression.

2.Acupuncture: Acupuncture is a traditional Chinese medicine technique in which thin needles are inserted into the skin at specific points on the body with the aim of balancing the flow of energy in the body to reduce symptoms of various conditions, including pain, insomnia, and depression. Some acupuncturists suggest using the technique to complement psychotherapy.

This approach may reduce depressive symptoms more than usual treatment or no treatment.

The effects of acupuncture to medication and psychotherapy is unclear because of low-quality evidence. But there appear to be fewer side effects with acupuncture than with antidepressant medications.

3.Supplements: Researchers have demonstrated the benefits of some dietary supplements on depressed mood. There are herbs that boost the levels of chemicals in the brain that are linked with improvement in depression.

Its effectiveness in those with severe depression is uncertain it can interact with many drugs, so the use of this herb in patients who take medications should be carefully planned and monitored by a healthcare professional. Herbs sometimes get a bad rap for causing interactions, although there is far more documentation about drug-to-drug interactions.

4. Repetitive transcranial magnetic stimulation (rTMS): For patients with severe depression that don't respond to therapy or medications, there are a variety of options ranging from less to more invasive. On the non-invasive side, rTMS is a technique provided on an outpatient basis that does not require anesthesia.

This FDA-approved treatment delivers magnetic pulses to the brain to stimulate nerve cells that influence mood and depression.

Results of numerous studies indicate that rTMS is safe and effective for many patients who do not get better with other types of treatment.

Treatment with rTMS requires sessions five days a week for more than one month and possible booster sessions, which is not an option for everyone.

5. Electroconvulsive therapy (ECT): ECT is a moderately invasive approach in which patients are given a shock resulting in a seizure while under anesthesia.

Although this looks scary and has been given a negative stigma due to memory problems – usually temporary – that it can induce, this treatment is effective for severe cases.

XII. COUNSELLING FOR DEPRESSION

[9]The length and severity of the symptoms and episodes of depression often

determine the type of therapy. If you've been depressed for a length of time and the symptoms are severe, working with a psychiatrist or psychologist (PsyD) may be necessary since they deal more with issues from the past that may be deeply-rooted in your present feelings. But if the symptoms of depression are more recent or not as severe, working with a therapist in a counseling relationship may be helpful.

During counselling the therapist will use "talk therapy" to help you understand and work through the issues that are impacting your life in negative ways. Their role is to listen, provide feedback, and work with you to develop strategies to cope. They will also evaluate your progress and adjust the sessions accordingly. You may be asked to do homework that extends the learning from the counseling sessions. Often, this is in the form of tracking moods and feelings.

With CBT, the therapist can help you change negative thinking that may be making the symptoms of depression worse. The focus is goal-oriented, with you, the patient, taking an active role.

Guidelines:

Be aware of the signs.

i. Share what you've observed and let the person know why you're concerned. It is important to let the person know that he or she is loved, deserves to feel better, and getting the proper treatment will help them feel better.
ii. Encourage them to seek treatment or, in the case of a depressed child or adolescent, help the young person get treatment.
iii. Recommend helping resources, such as therapy, online resources, or depression hotlines.
iv. Offer to accompany your loved one for a physical (to rule out a physical illness) and to any other appointments to keep them on task.
v. Act as a mediator if the depressed person is too young or ill to provide necessary information to a therapist.
Arrange for hospitalization if the depressed person is suicidal or having hallucinations or delusions.
vi. If the depressed person is functional and refuses treatment, seek the assistance of others — friends, doctor, clergy, relatives — who might convince him or her that treatment is needed and will help.
vii. If you have encouraged the depressed person to seek treatment and they refuse, and the person is having a demoralizing impact on those around him or her, further action is needed.

1.Cognitive behavioural therapy: Cognitive behavioral therapy (CBT) is a type of psychotherapy. This form of therapy modifies thought patterns in order to change moods and behaviors. The sessions provide opportunities to identify current life situations that may be causing or contributing to your depression. You and your therapist identify current patterns of thinking or distorted perceptions that lead to depression.

These include-

- All-or-nothing thinking: viewing the world in absolute, black-and-white terms
- Disqualifying the positive: rejecting positive experiences by insisting they "don't count" for some reason
- Automatic negative reactions: having habitual, scolding thoughts
- Magnifying or minimizing the importance of an event
- Overgeneralization: drawing overly broad conclusions from a single event
- Personalization: taking things too personally or feeling actions are specifically directed at you
- Mental filter: picking out a single negative detail and dwelling on it exclusively so that the vision of reality becomes darkened. This can be done through a series of well-practiced techniques, such as:
- Learning to control and modify distorted thoughts and reactions.
- Learning to accurately and comprehensively assess external situations and reactions.
- Practicing self-talk that is accurate and balanced.
- Using self-evaluation to reflect and respond appropriately.

2.Counselling for Depression (CfD): Counselling for depression (CfD) helps people explore and understand the feelings underlying their depression; how to express these feelings; and then empowers them to develop new ways of looking at themselves and the world around them.

Counselling-based treatment helps people access underlying feelings, make sense of themdraw on the new meanings which emerge to bring about positive changes in their lives.

3.Interpersonal therapy: Interpersonal therapy (IPT) is a method of treating depression. IPT is a form of psychotherapy that focuses on you and your relationships with other people. It's based on the idea that personal relationships are at the center of psychological problems.The goals of IPT are to help you communicate better with others and address problems thatcontribute to your depression.Feelings of depression often follow a major change in your life.

4.Mindfulness based cognitive therapy: MBCT encourages individuals with MDD to become more aware of their internal events like thoughts, feelings, and bodily sensations and to change the ways in which they relate to these thoughts.

5.Psychodynamic therapy: Psychodynamic therapy is the kind of talk therapy many people imagine when they think of psychological treatment for depression. That's because the image of the psychiatrist and patient probing the past is a staple of our popular culture.Psychodynamic therapy involves an exploration of the entire range of a patient's emotions. With the help of the therapist, the patient finds ways to talk about feelings that include contradictory feelings, feelings that are troubling or threatening, and feelings that the patient may not have recognized or acknowledged in the past.

6. Group Therapy: It is a form of psychotherapy that involves one or more therapists working with several people at the same time. This type of therapy is widely available at a variety of locations including private therapeutic practices, hospitals, mental health clinics, and community centers.

Principles-

a) Instills hope: The group contains members at different stages of the treatment process. Seeing people who are coping or recovering gives hope to those at the beginning of the process.
b) Imparting information: Group members can help each other by sharing information.
c) Development of socialization techniques: The group setting is a great place to practice new behaviors.
d) Imitative behavior: Individuals can model the behavior of other members of the group or observe and imitate the behavior of the therapist.
e) Interpersonal learning: By interacting with other people and receiving feedback from the group and the therapist, members of the group can gain a greater understanding of themselves.

XIII. CONCLUSION

Depression is different from usual mood fluctuations and short-lived emotional responses to challenges in everyday life. Especially when recurrent and with moderate or severe intensity, depression may become a serious health condition. It can cause the affected person to suffer greatly and function poorly at work, at school and in the family. At its worst, depression can lead to suicide. Depression can be temporary, or it can be a long-term challenge. Treatment doesn't always make your depression go away completely. However, treatment often makes symptoms more manageable. Managing symptoms of depression involves finding the right combination of medications and therapies. If one treatment doesn't work, talk with your healthcare provider. They can help you create a different treatment plan that may work better in helping you manage your condition.

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