

## ASSESSMENT OF DEPRESSION PREVALENCE IN KARACHI POPULATION

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### Abstract

This study explores the two-way relationship between depression and immune system dysfunction, focusing on how emotional distress can translate into physical illness. A cross-sectional study was carried out on 100 participants in Pakistan, mainly students and young adults. A multiple-choice questionnaire was designed to assess participants emotional well-being alongside physical symptoms such as fatigue, chronic pain, and frequency of illness, in order to identify possible immune-related issues. The results indicate

a notably high prevalence of depressive symptoms, particularly among females (85%) and individuals aged 19–28 (87%). Many participants also reported physical health concerns commonly linked to weakened immunity, including gastrointestinal issues (62%), persistent fatigue (62%), and joint pain (51%). In addition, 43% of respondents reported falling ill multiple times a year, suggesting reduced immune resilience. These findings align with established biological explanations, including increased levels of pro-inflammatory cytokines and over-activation of the (HPA) axis, both of which connect chronic stress to systemic inflammation and possible long-term neurological effects. The study is limited by its relatively small sample size (n = 100) and its focus on a specific population in Pakistan, which may affect the generalizability of the findings. With 74% of participants reporting that they had not received any form of treatment, the findings highlight an urgent need for more accessible and integrated mental health services. Addressing both the psychological and physical aspects of depression is essential to reduce long-term health risks. This study contributes to existing literature by combining survey-based evidence with insights from neuro-immunology, emphasizing the significant physical consequences of untreated depression among young adults.

### Introduction:

Depression is the most well-known and mental issue. It is only more than trouble. Individuals with discouragement may encounter an absence of intrigue and joy in day by day life exercises, critical weight reduction and addition, a sleeping disorder or over the top dozing, absence of vitality, failure to think, feeling of uselessness or inordinate blame and repetitive considerations of death or suicide.<sup>[1]</sup>

Depression is a noteworthy human curse. All around, it is in charge of a bigger number of years lost to handicap than some other condition. This is to a great extent in

light of the fact that such a large number of individuals experience the ill effects of it. Somewhere in the range of 350 million, as indicated by WHO and it goes on for a long time. Depression is broadly undiscovered and untreated in view of shame, absence of powerful treatments and lacking psychological well-being resources. But now melancholy is practically treatable. A mix of treatment and stimulant treatment can recuperate depression.<sup>[1]</sup>

Sadness in young people is a noteworthy hazard factor for suicide, the second to third significant reason for death in this age gathering, with the greater part of a juvenile suicide exploited people answered to have a burdensome issue at time of death. Wretchedness additionally prompts genuine social and instructive disability and an expanded rate of smoking, substance abuse and weight. Along these lines to perceive and treat this issue is important.<sup>[2]</sup>

## TYPES OF DEPRESSION

### 1. DYSTHYMIA ( PERSISTENT DEPRESSIVE DISORDER)

It is discouraged disposition and it goes on for a long time at any rate. An individual with this issue have scene of significant sorrow alongside less indications should keep going for a long time at that point called diligent burdensome issue.

### 2. POSTPARTUM DEPRESSION

This condition is increasingly genuine amid pregnancy or after conveyance and ladies experience this in the wake of bringing forth blue infants (mellow burdensome and nervousness indications that show following 2 weeks of conveyance).<sup>[2]</sup> The sentiment of extraordinary misery, nervousness or fatigue may create trouble for mother to deal with herself or her children.

### 3. PSYCHOTIC DEPRESSION

If a person has severe depression along with some forms of psychosis, having delusions (false fixed beliefs) and have hallucination (seeing or hearing of upsetting things around them), this termed as psychotic depression.

### 4. SEASONAL EFFECTIVE DISORDER

This melancholy is beginning in winter months. Winter dejection, regularly joined by social withdrawal, expanded rest, expanded weight. It restores each year in occasional compelling issue. It by and large lifts amid spring and summer.

### 5. BIPOLAR DISORDER

It is unique in relation to gloom, since somebody with this issue experience scenes of amazingly low states of mind that meet criteria for real dejection. Individual likewise experience high euphoric, touchy states of mind called "lunacy" or less serious structure called "hypomania".<sup>[3]</sup>

### 6. SITUATIONAL DEPRESSION

It is also known as adjustment disorder, in which a person is unable to adjust itself with environmental changes or emotional changes. This depression may be due to loss of close friend, family member, etc and a person can not comfortable in new situation. Other causes are accidents, crimes, fire, etc. This depression is temporary for few days only then a person adapts their environmental changing.

### 7. ENDOGENOUS DEPRESSION

It is a type of atypical depression in which chemical imbalances trigger the brain. Endogenous depression passed from parents to the child. It affects a person's lifestyle.<sup>[4]</sup>

### 8. MAJOR DEPRESSIVE DISORDER

Significant burdensome issue is likewise called clinical discouragement. It is a temperament issue that causes a constant sentiment of misery and loss of intrigue. It influences the inclination, thinking and cause passionate and physical issues, experiencing issues to do typical activities.<sup>[3]</sup>

### 9. MIXED DEPRESSION

Mixed depression is also called mixed state, mixed episode or agitated depression. It is a mixed condition in which the symptoms of both depression and mania exist at the same time. A person who have this condition, experience depressive symptoms along with manic symptoms like racing thoughts.<sup>[5]</sup>

### 10. MELANCHOLIC DEPRESSION

Melancholia is the oldest term used in psychology and introduced in century. In melancholic depression person have fear, loss of appetite, restlessness, agitation and sadness. Melancholia is a profound presentation of severe depression. There is a complete loss of pleasure in almost everything.

### 11. CYCLOTHYMIC DEPRESSION

Cyclothymic issue is depicted as milder type of bipolar issue. The individual who have cyclothymic issue encounters perpetual fluctuating states of mind more than 2 years. Its manifestations are shorter, less severe.

### 12. ATYPICAL DEPRESSION

It is a subtype of major and dysthmic discouragement. It includes certain indications that emphatically responsive to ecological conditions, and feeling incredibly delicate to

dismissal. Individuals who have atypical misery have regularly experienced melancholy first at an early age, amid teenage.<sup>[6]</sup>

### 13. MINOR DEPRESSIVE DISORDER

Minor depression is a mood disorder and is not severe as major depression. Only 2 depressive symptoms need to be present for 2 weeks or more. It is also known as chronic depression and has fewer symptoms.<sup>[6, 7]</sup>

### 14. RECURRENT BRIEF DEPRESSIVE DISORDER

Intermittent brief burdensome issue is an all around characterized and predominant state of mind issue with an expanded danger of self-destructive conduct. It happens at any rate month to month with burdensome scenes enduring just couple of days. Lifetime co event of both RBD (Recurrent Brief Depression) and MDD (Major Depressive Disorder) are called CD (Combined Depression).<sup>[7]</sup>

According to new research another type of depression is included that is Disruptive mood dysregulation disorder and Premenstrual dysphoric disorder.<sup>[3]</sup>

Despondency is a complex psychological well-being condition that makes an individual have low state of mind and may leave them feeling relentlessly miserable or sad. Burdensome side effects can be a transitory involvement because of sadness or injury however when the side effects last longer than about fourteen days it very well may be an indication of a genuine burdensome issue. Similar manifestations can likewise be an indication of another psychological wellness condition, for example, bipolar or post horrible pressure issue.

## MANIFESTATION OF DEPRESSION

The symptomatic and measurable manual of mental issue (DSM-5) records the accompanying 5 side effects of wretchedness:

- Almost to an extreme or too little rest
- Weight misfortune or weight increase or change in craving
- Physical unsettling or feeling of drowsiness
- Fatigue or low vitality
- Usually discouraged disposition including feeling of misery or vacancy
- Loss of joy in recently delighted in exercises
- Trouble to focus or deciding
- Intrusive musings of death or suicide

These manifestations shift among people and may change time to time. To analyze the wretchedness, individual must have very nearly at least five manifestations for more than more than about fourteen days.

## PHYSICAL SYMPTOMS OF DEPRESSION

Research has reported numerous ways that depression can influence physical wellbeing, including following:

### 1. IRRITABILITY:

In depression person not give well reaction on a simple conversation. People are easily irritated.

## 2. LOSS OF CONCENTRATION:

In depressed condition person not active and has difficulty to concentrate on work.

## 3. SUICIDAL THOUGHTS:

In extreme episode of depression, person may think to kill themselves to give relief from emotions or stress.<sup>[5]</sup>

## 4. WEIGHT GAIN OR LOSS

Individuals with melancholy may encounter craving changes, which can cause unintended weight reduction or addition. Weight gain is due to health issues like diabetes and heart diseases. Under weight persons suffer from fatigue, affect fertility and harm the heart.

## 5. CHRONIC PAIN

In despondency individuals may experience the ill effects of throbs or agony including joint or muscle torment, bosom delicacy and cerebral pains. Side effects can exacerbate in view of incessant torment.

## 6. HEART DISEASE

Wretchedness can lessen individual's inspiration to settle on positive way of life decisions. On the off chance that individual eat less than stellar eating routine and have a stationary way of life so there is a danger of coronary illness. Agreeing exploration distributed in 2015, one of every five individuals with heart disappointment or coronary course infection has melancholy.

## 7. INFLAMMATION

Research shows interminable pressure and sadness are connected to irritation and may change safe framework. Other research demonstrates that wretchedness could be because of ceaseless aggravation. Burdensome patients are bound to inclined auto insusceptible issue, for example, bad tempered gut disorder (IBS), type 2 diabetes and joint inflammation.

## 8. SEXUAL HEALTH PROBLEM

Depressive patients have decreased libido, have troubled becoming aroused, no longer have orgasms, or having less pleasure. Due to depression people may experience relationship problems which impact on sexual activity.

## 9. WORSENING CHRONIC HEALTH CONDITION

In the event that individuals have constant medical issue, side effects may more terrible on the off chance that they create discouragement. Interminable ailment may as of now feel disconnecting or upsetting. Gloom may worsen these sentiments.

## 10. TROUBLE SLEEPING

Depression may contribute to insomnia or trouble sleeping. Due to this condition people exhaust and have difficulty to manage physical and mental health. Sleep deprivation can lead to diabetes, weight related issues, high blood pressure and some types of cancer.

## 11. GASTROINTESTINAL PROBLEMS

Because of discouragement stomach or assimilation issue is regular, for example, looseness of the bowels, queasiness, regurgitating or clogging. A few people likewise have

endless sickness like IBS. As per research distributed in 2016, these issues is because of cerebrum's reaction to worry by stifling action in the nerve center, pituitary organ and adrenal gland.<sup>[8]</sup>

#### MAIN CAUSES OF DEPRESSION

**ABUSE:** If a personal is involved in past exual, physical or emotional abuse, have high vulnerability to clinical depression.

**CERTAIN MEDICATION:** A few meds like isotretinoin that is utilized to treat skin break out, antiviral medication that is interferon-alpha, corticosteroid may build despondency.

**CONFLICT:** Depression in a person is also developing who have conflicts with friends or family members.

**DEATH OR LOSS:** Risk of depression may increase if a person loss his/her loved one.

**GENETICS:** Sometimes depression is genetically transferred from parents. In a person many genes involve in depression and produce smaller effect but may be a single gene produce a risk of disease like psychiatric disorder that is cystic fibrosis, Huntington's chorea.

**MAJOR EVENTS:** Both good and bad events makes a person depressed like getting married, new job, graduation, etc and losing a job, getting divorced, etc respectively.

**SERIOUS ILLNESS:** Sometimes depression trigger by medication of another disease condition.

**SUBSTANCE ABUSE:** Alcohol consumption and other drugs abuse may cause aggravate depression.<sup>[9]</sup>

## BIOLOGICAL CAUSES OF DEPRESSION

**PHYSICAL CHANGES IN BRAIN:** If a person is in depression, its brain's physical features are changed which is monitor by brain imaging devices, when patient is under treatment.

**NEUROTRANSMITTERS:** If neurotransmitter levels changes in the brain, it may cause depression. It includes dopamine, serotonin, norepinephrine.

**HORMONES:** In human body hormones levels mostly up and down due to different conditions, in puberty, menopause, during and after pregnancy hormones fluctuate which may cause depression.

## ENVIRONMENTAL CAUSES OF DEPRESSION

- Financial problems
- Death of a loved one
- High stress situation
- Loss of a job<sup>[5]</sup>

## HAZARDS FACTORS FOR DEPRESSION

Following are the elements that can assume job in sorrow:

**NATURAL CHEMISTRY:** Differences in specific synthetic substances in cerebrum may add to side effects of misery.

**HEREDITARY QUALITIES:** Depression may be hereditary that passing from to families. It is often possible that one indistinguishable twin has sorrow; it is 70% possibility of having some same symptoms of another one.

**CHARACTER:** People of low confidence and are easily come in tension are more prone to depression.

**ECOLOGICAL FACTORS:** Continuous presentation to viciousness, disregard, misuse or destitution may make a few people progressively defenseless against depression.

## PATHOPHYSIOLOGY OF DEPRESSION

The insusceptible framework is a gathering of billions of cells that movement through the circulation system. They move all through tissues and organs shielding the body against antigens, for example, microorganisms, infection and harmful cells. Lymphocytes are of 2 types.

**B cells:** It produces antibodies which are discharged into liquid encompassing the body's cell to annihilate the attacking antigens. **White blood cells:** It bolts the antigens that are inside the cell, increase and wreck it. White platelets are the principle sort of resistant cells. It has 2 types: lymphocytes and phagocytes. In the event that we are focused on, safe cells ward off against antigens to lessen. That is the reason we are progressively defenseless to contamination. Corticosteroid is the pressure hormone that can smother the adequacy of safe framework (decrease the quantity of lymphocytes). In the event those individuals utilize undesirable social adapting methodologies to lessen their pressure, for example, smoking and drinking, stress may cause circuitous impact on safe framework. Transient concealment of resistant framework isn't risky however incessant concealment leaves the body helpless against disease. A precedent is AIDS. Stress additionally influences the stomach related framework. During depress condition digestion inhibited, this may cause ulcers. Adrenaline is also released in stress condition and cause ulcer.<sup>[10]</sup> Depression increases circulatory system in the body so the heart rate and blood pressure is high that affect immune system. If hypertension persistent for several weeks it causes CHD (Coronary Heart Disease), it is due to over eating of salt, drinking of extra amount of alcohol or coffee. In depression blood cholesterol levels is increased because on the release of free fatty acids, adrenaline and non adrenaline changes the cholesterol level. It

produces cholesterol clots in blood and cause occlusion of arteries. If heart rate and cholesterol both are increased, they cause lesion on artery walls.<sup>[11]</sup>

Burdensome issue are the third driving reason for years lost of inability around the world, ascending to second among 15 to multi year old. This weight expanded in the course of recent years

- In depressive condition, cytokines are elevated
- Up to 40% patients treated with cytokine treatment create clinical misery
- Greater rates of depression is due to Inflammatory illnesses
- Higher danger of irritation is related with absence of reaction if stimulant treatment.<sup>[10]</sup>

A past report demonstrates that despondencies are related with beginning, course or result of physical sickness. Burdensome issue are related with expanded dismalness and mortality. Immunological modification have been seen as a connection among despondency and stress and higher the hazard for invulnerable related illnesses, for example, malignant growth, HIV etc.<sup>[3]</sup>

Hyperactivity of hypothalamic pituitary adrenal axis produce major depression while hypoactivity of hypothalamic pituitary adrenal axis produce atypical depression. Early life stress has impact on development of neurobiological system in stress and mood responses and hence the risk of depression increase in later in life.<sup>[5]</sup>

Endocrine and immune system plays an important role in the pathological changes that occur in depression. In past 30 years of clinical and experimental evidence presenting that both cellular and humoral immunity were disturbed in major depression. Study of past 20

year showed that immunomodulator and immunotransmitter plays a role in pro and anti inflammatory cytokines. It is reported that interleukin 6 that is major pro inflammatory cytokine, was increased in the blood in depressive condition. It was also observed that 45% patients are therapeutically treated with IFN, proinflammatory cytokine interferone alpha which produce the major symptom of depression, because on the withdrawal of cytokines IFN was also terminate.<sup>[12]</sup>

#### INTERRELATIONSHIP BETWEEN CYTOKINES AND BRAIN FUNCTION

Brain is the immunologically privileged part that is protected from BBB (blood brain barrier). Brain is effect by peripherally derived cytokines, chemokines, prostenoids and glucocorticoids and some immune cells that can reach to the brain and produce neural network that cause malfunctioning in depression. There are several factors by which neurotransmitters are entering into the brain:

- Through a flawed blood cerebrum obstruction in real melancholy
- By actuation of endothelial cells that produce provocative go between inside the boundary
- By official to cytokine receptors related with vagus nerve and permit provocative changes in the mind through core and nerve center

Once pro inflammatory cytokines enter in the brain, they enhanced both neuronal and non neuronal cells through the NF-KB (nuclear factor- kappa beta). According to studies it is showed that peripherally administration of cytokines also enters in the brain. If we administered IFN to hepatitis patient, CSF (cerebrospinal fluid) increase along with

interleukin 6 and monocytes chemoattractant protein also increased which activates microglia to release interleukin 6 and TNF then pro inflammatory cytokines enter in the brain. It is demonstrated by experiments that peripheral inflammatory mediators enhanced inflammatory response in the brain. These cytokines also help to release the biogenic amine neurotransmitters. By the synthesis of serotonin, tryptophan is converted into kynurenine that is another pathway to activate cytokines in brain. Serotonergic function is decreased in depression. In depression dopaminergic activity is also reduced due to inflammation. Cytokines pathways enhance the reuptake of monoamine neurotransmitters and reduce inter-synaptic concentration in brain. Cytokines play a vital role in the symptoms of depression by activating HPA axis by increasing the release of CRF, cause hypercortisolemia, which is a characteristic of major depression. Cytokines also cause glucocorticoid insensitivity and resistance that is directly linked with psychopathology of depression. So, we concluded that cellular and humoral immunity are decreased if there is high rate of plasma glucocorticoid concentration.

#### THE ROLE OF STRESS AND PRO INFLAMMATORY CYTOKINES

Inflammation plays a vital role in the psychopathology of depression. A severe depression is often due to inflammatory disorders that produce changing of inflammatory mediators and cause depression. In depression endocrine and immune axis activate in depression of depressed patients because they have increased psychosocial stress. By the release of adrenaline and noradrenaline sympathetic system activate which activate the alpha and beta adrenoceptor on immune cells and start to release cytokines. Whereas parasympathetic system has an opposite effect in the inflammatory response.

## SEROTONIN, STRESS AND DEPRESSION

Serotonin also have an effect in depression like depressed mood, sleep disturbance, anxiety, loss of libido and anorexia. Serotonin increases the release of adrenocorticotrophic hormone from anterior pituitary gland. There is a link between cortisol concentration and serotonergic system. If a person is in depression cortisol level increased which also elevated the serotonin. In chronic condition, cortisol level is increased but the serotonin level is decreased. This is due to glucocorticoid activation of tryptophan dioxygenase in the liver because tryptophan is converted into kynurenine in place of serotonin<sup>[13]</sup>.

Experimental studies showed that environmental factor increased anxiety which slow down the serotonin activity. Glucocorticoid also decrease the functional activity of serotonin in depression. Clinical studies showed that in depressive condition there is induce in hypersecretion of cortisol. In depression serotonin not only effect mood modulating but also cause direct effect on endocrine axis. Thus we concluded that serotonergic system plays a vital role in the onset of anxiety and depression.

## STRESS, DEPRESSION AND NEURODEGENERATION

In depression proinflammatory cytokines in the brain can cause cellular injury. If the cytokines are present in pathological concentration, it enhances neurogenesis and results in the psychopathology of depression. Glutamate, nitric oxide, glucocorticoids and pro inflammatory response plays an act in pathological processes that are link with depression. Nitric oxides are toxic to neurons and cause neuronal apoptosis in prefrontal cortex, amygdale and hippocampus that involved in the pathogenesis of depression. neurotoxic effect of proinflammatory cytokines, excess glutamate and tryptophan produces neurotoxic product which cause the neurodegeneration in depression. The

clinical study showed that rate of neurodegenerative pathway is higher in the blood of depressed patients before starting antidepressant therapy. Only 8 weeks of treatment to partially depressed patients, the antidepressant medication produce effective therapeutic effect but it has no effect on chronic depressive patient. If patient have major depression, its hippocampus is shrink and neuronal loss in prefrontal cortex.<sup>[14]</sup>

Exact pathophysiology of depression is under studies and many theories of pathophysiology of depression has been discovered. With depression there is mitochondrial dysfunction occur in some regions of brain. Mitochondria play an important role in the production of ATP. Calcium channel signal to make the membrane stable, oxygen balancing in cell, neurotransmission and plasticity. According to study the roles of mitochondria are disturbed due to depression.<sup>[7]</sup>

Depression is the extremely cause of a major disease in the worldwide. In recent decades, its global prevalence and symptoms increased.<sup>23</sup> Women are more prone to experience depression as men, and upto 25% to women can expect to be depressed in their lifetimes. Depression is mostly to recur in upto 85% of women.<sup>[1]</sup> Severe forms of depression affect 2% to 5% of US population, and 20% people suffer from mild depression, 1% to 2% suffer from bipolar depression and effects male and female equally. Mood disorder are recurrent, life threatening and major cause of morbidity worldwide. <sup>[8]</sup>Lifetime popularity of depression ranges from 20% to 25% in women and 7% to 12% in men. The popularity of depression and its symptoms is higher in patients than in the general public. Several research reports showed that popularity of depression in tumor and blood diseases patients was 9.6% to 16.5%, in severe medical conditions are as follows: in skin diseases 5%, gouty arthritis 20%, asthma 27%, COPD (chronic obstructive

pulmonary disease) 24.6%, rheumatoid arthritis 15%, SLE (systemic lupus erythmatosus) 22% and stroke 30%<sup>[9]</sup>

### TREATMENT OF DEPRESSION

Melancholy is the most widely recognized mental issue and is a main source of suicide. Discouraged individuals will have numerous scenes, and some sorrow is interminable. It is imperative to treat intense scene, yet in addition to secure against ensuing scenes. A few kinds of intercessions appeared in treating depression.<sup>[13]</sup>

**ANTIDEPRESSANT:** Antidepressant used to help modify brain's chemistry. These medications not sedative, addictive or tranquilizers. It produces improvement within first or two week of use. If patient not feel benefits for two to three months, dose may alter or other antidepressant may added or substitute. These medications take almost six or more months until the symptoms may be cured.

**PSYCHOTHERAPY:** Psychotherapy is a talk therapy that is often used sometimes to treat less depression, for moderate to excessive depression. It gives along with antidepressants.

**ELECTROCONVULSIVE THERAPY:** This treatment utilized from 1940. It is a medicinal treatment, regularly give to the patients with serious real wretchedness issues who have not give positive results to different medications. It includes electrical incitement of cerebrum while patient is under anesthesia. Patient gets ECT 2 to 3 times each week for 6 to 12 treatments.<sup>[15]</sup>

**INTERPERSONAL THERAPY:** In this treatment a psychiatrist motivates the patient to control their mood swings, change habits by his/her attractive counseling, then it is easy to patient to overcome from depression. It last for few months.

**COGNITIVE BEHAVIORAL THERAPY:** CBT (Cognitive Behavioral Therapy) encourages an individual to perceive mutilated reasoning and afterward change conduct and thinking.

Contingent upon seriousness of sorrow, treatment takes couple of weeks. It is useful in nervousness, substance misuse and crazy discouragement.

**LIFESTYLE:** To decrease the depression, modification in life style is necessary like take healthy diet, do regular exercise, make good relationships with people, withdrawal of alcohol or substance abuse.

**PSYCHODYNAMIC THERAPY:** This therapy focus on depressed patient's unconscious mind to solve the stress. A person has to go clinic 3 times a week. Psychiatrist fined the exact reason of depression and patient's past conflict to easily resolve depression of a patient.

**OTHER ALTERNATIVE DEPRESSION TREATMENT:** Every religion has their own culture and remedies to reduce depression. Herbal remedies, reflexology, acupuncture, massage therapy, yoga, meditation are some alternative therapies to treat depression<sup>[11]</sup>

## METHODOLOGY

This study is based on online survey, which was conducted in Pakistan to evaluate the effect of depression on immune system. This study was conducted on 100 peoples who include mostly students and youngster and some elder persons. The questionnaire was MCQ's based asking people to give opinions that what they feel about their emotions, risk taking capability, mood swings, tiredness, irritability, difficulty in sleeping, weight gain or loss and suicidal attempts. This survey form also include questions that give evaluation of immune system problems due to depression, questionnaire include stomach aches, heartburn, blood pressure problems, headache, postural hypotension, restless legs.

## RESULT

The result shows that mostly females suffer from depression. Our result indicates that 85% females and 15% males feel the depression related symptoms shows in chart 1. Our result shows that youngster people are more prone to depression. The result indicates that 87%

people within the age of 19 to 28 are feeling depression related problems. Under 18 are 2%, 19 to 28 are 87%, 29 to 38 are 7%, 39 to 48 are 3% and above 49 are 1% people shows in chart 2. The result shows that depression mostly affects the immune system by different ways. 13% people always feel pain in joints, 51% people feel sometimes. 12% people always feel restless legs in depression whereas 41% peoples feel sometime. 8% people feel postural hypotension whereas 32% peoples feels sometimes. 7% people always feel loss of appetite whereas 44% people feel sometimes. 38% people always gain or loss weight due to depression whereas 30% people feel sometimes. 4% people always feel high blood pressure or increase heartbeat due to any stress whereas 52% people feel sometimes. 12% people ask that they always feel stomach cramps whereas 62% people sometimes feels stomach cramps, heartburn, etc. 30% people always feel headache due to any tension whereas 57% people sometimes feel headache. People feel tired when they depress, result shows that 25% feel always whereas 62% people feels sometimes. The result indicates that mostly immune system related problems occur in depress condition. Mostly people feels these symptoms that shown in chart 3. People when depress they also think about suicidal attempts, our result give opinion about their thinking that is 17% people always think, 57% people sometimes and 26% people never think about suicide which shown in chart 4. Our result shows that 16% people always ill when they depress, 52% people sometimes ill and 24% people never ill due to depression which shown in chart 5. People who become ill due to depression have different time period or how many times they ill, the result indicates that 1% people ill in once a week, 22% people become ill in every month, 34% people once a year and 43% people get ill many times in a year that shown in chart 6. People not much aware about depressive condition or when they are fallen in depression, only 37% people know that they are ever suffer from depression,

21% people never feel depression whereas 42% people ask that they maybe feel depression which shown in chart 7. People not take treatment for depression because they are not much aware about depression, only 26% people take treatment whereas 74% people not take any treatment for depression which shown in chart 8[16, 17].

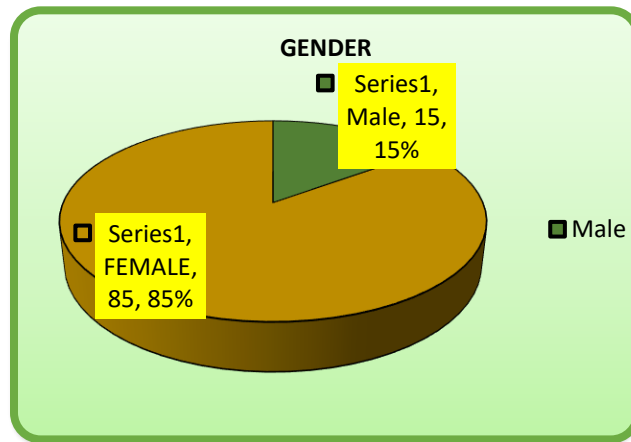


Figure 1:Prevalence of depression in different Gender



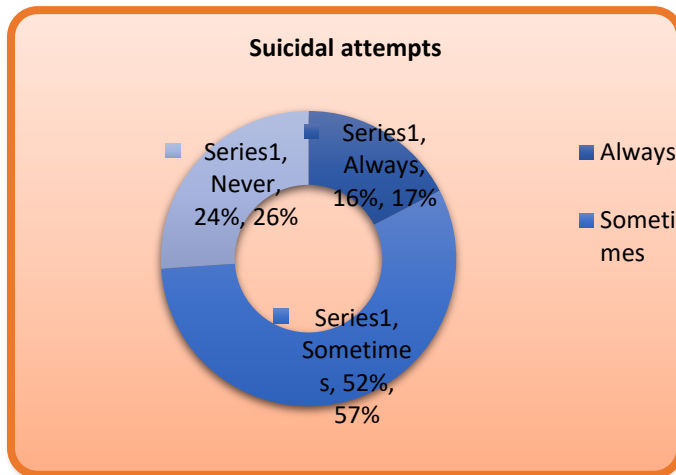


Figure 4: Thoughts of Suicidal attempts

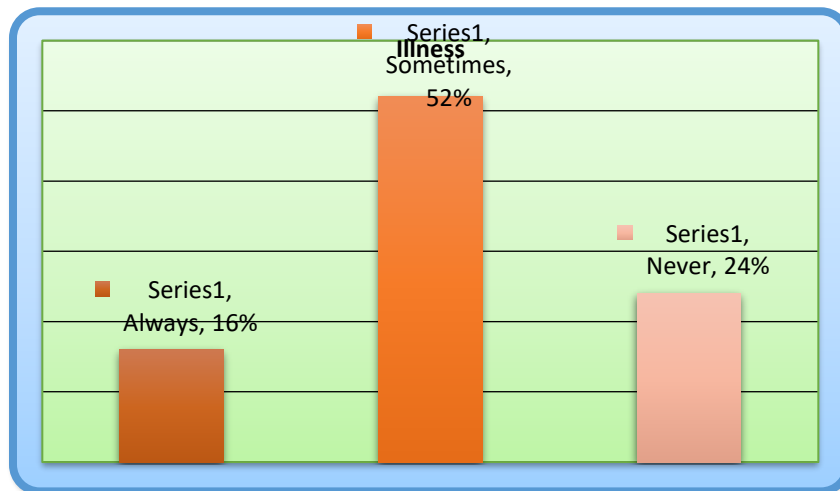


Figure 5 : Frequency of Illness

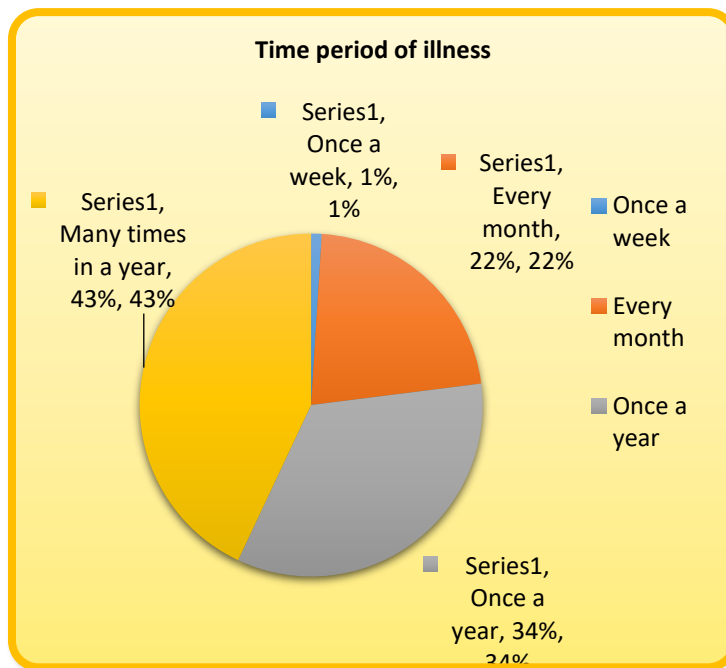


Figure 6: Time period of illness

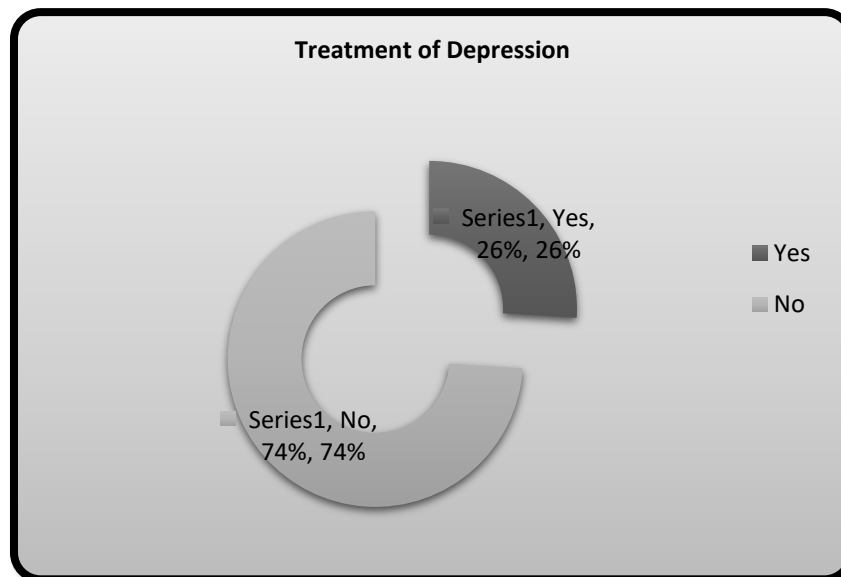


Figure 7: Treatment of depression

## DISCUSSION

A past report demonstrates that despondencies are related with beginning, course or result of physical sickness. Burdensome issues are related with expanded morbidity and mortality. This study was online survey based which was conducted in Pakistan in 100 people with different age groups. The result shows that people feel many disturbances in their immune system due to depression. Mostly females suffer from depression within the age of 19 o 28 almost. Due to depression people mostly feel tiredness, stomach cramps, stomach upset, heartburn, headache, blood pressure or heart beat increase, pain in joints, loss of appetite, weight gain or weight loss, restless legs and postural hypotension. Many other symptoms also appear in people or may be other diseases like immunological modification have been seen as a connection among despondency and stress and higher the hazard for invulnerable related illnesses, for example, malignant growth, HIV etc<sup>[2]</sup>In depressive condition many inflammatory neurotransmitter release in the brain which

affect the behavior changes in human body. A past study shows that high level of inflammation in brain due to untreated depression causes neurodegenerative diseases like Parkinson's, Alzheimer's, etc. A new study shows that depression cause severe illness of immune system that's why to treat depression is very important. New medications developed that triggers that brain's immune response instead of targeting the neurotransmitters like dopamine, serotonin[18].<sup>[3]</sup>

Depression affects more than 168 million people worldwide and it is the major cause of any disease burden, depression is the key factor for impaired quality of life in patients affected by chronic diseases. 7.5 times higher proportion of death is due to depression. Treatment of depression is linked with antipsychotic drugs. Antidepressants decrease the inflammation in brain, calm down neurotransmitter activity[19].<sup>[11]</sup>

## CONCLUSION

Study shows that depression linked with many diseases and behavioral changes, these symptoms indicate the activation of immune responses. The study provides that inflammation plays a role in the producing of depression. A clear linked of immune-neuro-psychological interactions are under study which give better understanding about it. Further studies focus on the relationship of immune system and psychological systems which will improve the understanding of disease conditions and also help in developing new medications to improve the quality of life of different individuals that affected by depression.<sup>[6]</sup>

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