DEPRESSION ASSESMENT AND ADOLESCENCE STRESS SURVEY

Thesis

Submitted in fulfillment of the requirements for the Degree of

Bachelor of Technology

Under the supervision of

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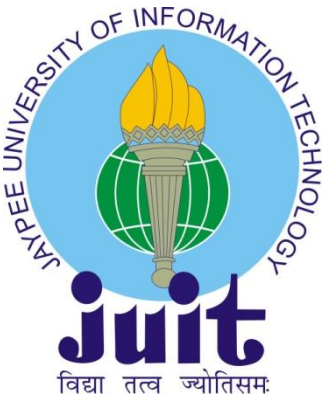

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CERTIFICATE

I hereby declare that the work presented in this thesis entitled **"Depression Analysis and Adolescence Stress Study"** in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology** in **Biotechnology And Bioinformatics** submitted in the Department of Biotechnology And Bioinformatics, Jaypee University of Information Technology, Waknaghat is an authentic record of our own work under the supervision of Dr. Udayabanu, Assistant Professor (Senior Grade), Department of Biotechnology & Bioinformatics and Co-Guidance of Dr. Saurabh Srivastava Assistant Professor (Grade-II) The matter embodied in the report has not been submitted for the award of any other degree or diploma.

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This is to certify that the above statement made by the candidate is true to the best of my knowledge.

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1. ABSTRACT

300 million individuals across the globe suffer fromdepression, as indicated by the World Health Organization. 16.2 million Adults in the United States—rising to 6.7 percent of theadult population in the nation—have encountered a notabledepressive episode in the previous years.10.3 million U.S. grown-ups encountered a scene that brought about serious debilitation in the previous year. Almost 50 percent of depressed individuals were additionally diagnosed to have anxiety. It is evaluated that 15 percent of the grown-up populace will encounter depression sooner or later in their lifetime. The frequency of adults with a depressive episode is most astounding among people in the age group of 18 to 25 years. 8.5 percentwomen, while 4.8 percent of men suffer from depression.

Depression as a disorder has dependably been a focal point of consideration of analysts in India. In the course of the last 50-60 years, substantial number of studies has been distributed from India tending to different parts of this normally common issue. The different viewpoints contemplated included the study of disease transmission, statistic and psychosocial hazard factor, neurobiology, symptomatology, comorbidity, evaluation and analysis, effect of depression, treatment related issues and avoidance of sorrow although the competence and affability of different antidepressants. Factual methodology was utilized by us for the determination of proportion of discouraged youngsters.

2. INTRODUCTION

Depression is one of the most common social disorders. Depression – a temperament issue is a diligent reaction toanger and loss of intrigue. This influences feelings, the process of thinking, about oneself and have a low regard of progressing life.

While the careful reason for despondency is not known, assorted reasons can be related with its enhancement. By and large, discouragement does not result from a solitary occasion, yet from a mix of ongoing occasions and other longer-term or individual elements.

Research recommends that proceeding with troubles – long time joblessness, living in an injurious or inhumane relationship, long haul disconnection or dejection, delayed presentation to worry at work – are bound to cause misery than ongoing life stresses. Nonetheless, progressive life events, (for example, occupational loss) or combined occasions can elicit depression in individuals. This disease has an occurrence in all the age groups, starting from the causes of depression in children to the adolescent age group and further extending its roots to the elderly population of the society.[1]However most of the times the condition of depression remains undetected owing to a greater health risk to the person suffering from this state of continuous sadness. In a general population these symptoms of persistent depression along with stress and anxiety are to be known the most common mental disorders. These disorders cause high health expenses and induce a burden on patients, their families who need to constantly support the individual suffering in order to ensure that the mental state and behavioural changes due to depression can be reduced to minimal if not completely treated. These disorders can be evident in

a variety of ways. Emotional, cognitive and behavioural type are the most typical.[2]

Depression is chiefly a learned condition or phenomenon, which is associated to depressing relations between the individual and the social environment (e.g., lower support or unsatisfactory social relations). These type interactions are predisposed by cognitions, behaviours and emotions (Antonuccio et al., 1989).

Major Depressive Disorder or Clinical depression is a severe mood disorder but most common. The symptoms have an effect on how one could feel, think, and respond to the daily activities, such as sleeping(that in some cases varies from excess sleeping patterns to condition of insomnia),eating(overeating or loss of appetite) or working condition. For depression diagnosis, the ongoing onset of symptoms must be present there for a period of least two weeks.

2.1 Signs and symptoms

- continual sad, nervous, or "empty" mood
- Feelings of despair, or negativity
- Irritability
- Feelings of guilt, insignificance, or helplessness
- Loss of interest in activities that once were satisfactory
- Reduced energy or constant fatigue
- Feeling agitated
- Difficulty in concentrating on things ,recalling, or taking decisions
- Disturbed sleeping patterns
- Appetite changes or weight fluctuations
- Suicidal thoughts or suicide attempts

- Body pains, headaches, muscle cramps, or digestive troubles without an apparent physical reason.

Some people suffering from depression do not experience most of these symptoms. The seriousness and occurrence of symptoms and the period for which they would remain will differ depending on the person and the person's particular sickness. Symptoms can also fluctuate depending on the point of the disease.[3]

Depression is the most familiar mental disorders across the globe. Current studies and research suggests that the causes of depression are a combination of heritable, biological, environmental, and psychological factors.

Depression can occur at any point in the lifetime of a person, but often more cases are seen to begin in adulthood. Depression in today's time is recognized as taking place in children and adolescents, a younger portion of the population of our society, although it at times presents with irritability rather than low mood swings. Many persistent mood and anxiety disorders in the adult population begin as unusual levels of soaring anxiety issues in children that remained undetected.

Depression can be more severe especially when taking place in midlife or older adults, can occur simultaneously with many other medical illnesses, for example as diabetes, cancer, heart disease, and Parkinson's disease. These conditions when present altogether are often worse for the person who is suffering. The medications prescribed for the physical illnesses may in certain cases cause side effects that contribute to worsening of depression.

According to the 2017 report of WHO, world health organization, there are about 300million people across the world who are suffering from threats of depression.

Depression is also the second leading cause of death (suicides in many cases) among the population aged between 15-29 years. The severe symptoms of depression in children can be evaluated with the help of Children Depression Inventory (CDI) and the Children Depression Scale (CDS, Lang and Tisher, 1978).

2.2 Depression in women

According to recent studies the tendency of women suffering from stress and depression in their lifespan is twice as compared to men. The reasons framed postpartum depression, unprepared or forced pregnancy, baby blues, level of marital satisfaction, maintaining balance between their work and household responsibilities, domestic violence, women with history of substance abuse (alcohol, cigarette or tobacco smoking, etc). In certain cases, the husband with a history of substance abuse also contributes to the factor of depression in women. The lack of social support and recognition also frames as distressing concerns for the same.

So as to comprehend the reason for dejection, from the beginning of time there have been many fluctuated hypotheses to clarify the system and premise of this psychological issue. The biological theories state that the cause of depression arises from a variety of different perspectives mainly "due to noradrenalin deficits (e.g., Schildkraut, 1965; Narbona, 2014) , "alterations in brain structure (Whittle et al., 2014) endocrine disorders (e.g. Birmaher et al., 1996), sleep-related disorders (e.g., Sivertsen et al., 2014; Pariante, 2017), the influence of genetics factors (Scourfield et al., 2003) .

The process of evaluation of depression correctly has been another major concern focusing the psychology, along with paying attention towards the process of

specifically diagnosing this pathology in early childhood and adolescence. For the process of diagnosing depression in adolescent and adults, there are many developed diagnostic instruments but the main concern still lies in the case of finding diagnostic tests for children for depression evaluation. The World Health Organization (WHO) (2017), accentuates on focusing on and receiving steps and proportions of forestalling sadness which contends that the intelligent projects at school, mediations went for guardians and certain activities for the older populace to help decline the rate of dejection. Discouragement counteractive action programs exist for the youthful age gathering and exceptionally uncommon for the youngsters younger than 10.

The process of depression treatment must not be avoided. The World Health Organisation and the World Bank in the year 2016, claimed that by investing for the treatment of dejection and tension would prompt multiple times return, since the pathologies every year costs the worldwide economy one trillion US dollars.The case about the compassionate crises and clashes attracts consideration regarding a squeezing need to widen existing remedial choices. The distinctive illustrative hypotheses of depression have offered ascend to overflow of various medications (psychotherapeutic, conduct, psychological social, relational, and so on.) which are as of now being utilized.

The present study has the following aims:

(1) To offer a generalized idea about the main expounding theories of depression;

(2) To diagram adolescence depression assessment through survey strategy;

(3) To compile the result following the statistical approach.

2.3 Typesof depression:

- Major Depressive Disorder

Major depressive disorder or known as MDD is characterized by a feeling of ongoing depressed or low mood all day long, repetitively for almost every day, while on account of youngsters and youths the mind-set might be fractious as opposed to being discouraged. The confusion causes a low dimension of intrigue or delight in all exercises, repeatedly for days, followed by weight fluctuations that may be significant weight loss or gain, disturbed sleeping patterns maybe sleep deprivation or hypersomnia, psychomotor fomentation or impediment, loss of vitality, sentiments of immateriality, or intemperate or wrong blame, diminished capacity to think or mull over ,rehashed considerations of death, visit self-destructive ideation, or a suicide endeavourtendency or a particular arrangement for ending it all. These manifestations make a noteworthy scene of pain or social impedance, word related harm, or in other significant territories of working. The pervasiveness rates for ladies are about 1.5– multiple times higher than for men.

- “Persistent Depressive Disorder (Dysthymia)”

Persistent depressive disorder (Dysthymia) is defined as a chronic major depressive disorder and Dysthymia disorder, and is characterized by a persistent depressed mood for most part of the day, for at least 2 years. In children and adolescents, mood swings can be irritable and can extend up to duration of at least 1 year. When the individual is experiencing a depressive mood episode, they tend to exhibit at

least two of the following symptoms: change in eating patterns (poor appetite or overeating), disturbed sleeping patterns (insomnia or hypersomnia), low energy or fatigue, low self-respect, poor or decreased level of concentration, or difficulty in making decisions for oneself and feelings of hopelessness. The prevalence of the disorder in the United States is about 0.5%.

- "Premenstrual Dysphoric Disorder"

The criteria for the diagnosis of premenstrual dysphoric disorder states - at least five symptoms out of the many must be present during the last days prior to the start of menstruation, and individuals should begin to recover a few days later, with all symptoms being completely eliminated the week after menstruation. The important characteristic symptoms are extreme levels of irritability or anger, mood fluctuations or changes (depressed mood and/or over-excitation), and accompanied by symptoms of anxiety which may include changed behaviour patterns. Symptoms negatively affect work life and social involvements.

- "Postpartum depression"

This type of depression is seen in women after they give birth. The depression is more serious and comprises of a mix of symptoms like comparatively mild depression and anxiety dominatingly occurring within two weeks of child delivery. Postpartum depression is accompanied by extreme levels of feelings like anxiety, sadness/ distress and exhaustion that make the condition of new mothers even worse. They tend to indulge in self doubt and face trouble in creating a bond with the baby, doubting their ability to care. In certain adverse conditions they might even starting considering the idea of harming the baby or themselves.

- “Substance/Medication-Induced Depressive Disorder”

Substance/medication-induced depressive disorder is determined by the prevalence of the symptoms of major depressive disorder, induced by the use, inhalation or injection of a substance of abuse, with symptoms persisting after the effects of intoxication or withdrawal have disappeared. Some medications are also responsible for certain depressive symptoms, for example: barbiturates, benzodiazepines, certain acne drugs like isotretinoin. The use of opioids like codeine and morphine are responsible for the mood fluctuations.

- “Single Depressive Episode”

The categorization of Single depressive episode lays points of differentiation between depressive episodes of diverse conditions: mild, moderate, and severe. Characteristic symptoms common to most include lowering or changes in mood, fatigue, and decrease in the interest of daily activity. There is a decrease in the level for concentration, and an increase in tiredness and fatigue. Changes that are noticeable occur in appetite, disturbed sleeping patterns, and self-confidence drops, feeling of guilt and insignificance prevail and the symptoms do not differ with the passing days. In the mildest form of this episode, two or three of the symptoms described exist, and the individual is able to fit into the most of the daily activities. Four or more symptoms are usually present when the episode turns out to be in its moderate form and the patient is starting to face difficulty progressing with each activity. In the most severe form, almost all of the symptoms are marked. Suicidal thoughts and acts of attempt get common .The depressive episode is at times marked with some psychotic symptoms, and is characterized by the presence of hallucinations, delusions, psychomotor retardation, or coma so severe that ongoing

social activities get difficult and impossible; along with danger to life from suicidal thoughts or attempts, dehydration, or starvation and malnutrition.

- "Recurrent Depressive Disorder"

Recurrent depressive disorder is categorized by repetition of episodes similar to those as described for single depressive episodes without mania. Sometimes antidepressant treatment may lead to elevation in mood and a brief episode of hypomania. The disorder gets more severe and forms a condition very similar to manic-depressive depression. The first episode of this disorder may occur at any age, varying from early childhood to old age. The onset could be acute or could last for a number of days to many months.

- "Persistent Mood [Affective] Disorders"

Persistent mood [affective] disorders are consistent and typically arbitrary clutters in which most of scenes are not appropriately extreme to the approval of being analyzed as hypomanic or gentle burdensome scenes. They will in general stretch for a long time and affect the patient's typical life. They include significant measure of anguish and inability. The confusion likewise incorporates cyclothymia and dysthymia. Cyclothymia is a bipolar full of feeling issue that includes a persevering insecurity of emotional episodes prompting times of stretched sadness and gentle delight. This issue is observed to be basic among the relatives of patients with bipolar full of feeling issue who in the long run with time create bipolar emotional turmoil. Dysthymia goes on for quite a long while, is a steady misery of mind-set which isn't appropriately serious, the individual scenes are not drawn out.

- “Seasonal affective disorder”

The onset of this type of depression takes place during the specific time of the year. The winter season characterized by reduced or less natural sunlight . This type of depression or generally called as winter depression, is represented by certain symptoms like increased pattern of sleep, withdrawal from social life or events, weight changes (generally increase in weight). This seasonal depression tends to decrease or lift during course of the altered seasons like spring time and summers. But the symptoms could reoccur repeatedly every year marking the seasonal affective disorder.

3.REVIEW OF LITERATURE

❖ Explanatory Theories of Depression

A single theory cannot explain the depressive disorders, since different forms variables are involved in the depressive disorders onset and determination. The main references for this explanation were psychological and biological theories.

- **"Biological Theories"**

If a person's family history or stressful life events are insufficient in providing an explanation to the mood pattern, then it may be deciphered that the individual suffers from a neurological disease. In these sorts of cases, the burdensome indications will in general become recognizable from the get-go in youth and teenagers as epileptic disorders, rest design issue, endless repeating cephalalgias, and a few neurometabolic maladies. (Narbona, 2014).

- **"Noradrenalin Deficit"**

A 'monoamine' called as serotonin which is connected to adrenaline, norepinephrine, and dopamine assumes a key utilitarian job, for the most part in the mind, as its involvement in important life regulatory functions like for example : appetite, sleep, memory, concentration, and social behaviors, etc and a few psychiatric pathologies (Nique et al., 2014).

Serotonin helps in modulating neuroplasticity, predominantly in the early years of a person's life.(Kraus et al., 2017).

MRI-tests conducted in fauna have shown that a decrease in-neuron size and density, and a reduction in hippocampal volume found in people suffering from

depression may be possibly due to changes in serotonergic neuroplasticity. (Branchi2011).

Curley et al. (2011) says that the quality of the social environment have an impact and influence the development of neural systems, that also tend to show an impact on responses(behavioral, physiological, and emotional) of a depressed person.

- **"Endocrine Alterations"**

The natural hazard factors, for example, endocrine, provocative or resistant, cardiovascular and neuro-anatomical components, and the nearness of changes that are identified with the age of an individual make individuals progressively inclined to despondency (Clarke and Currie, 2009).According to some studies depression is considered to be associated with endocrine changes: "like nocturnal cortisol secretions (Birmaher et al., 1996), nocturnal growth hormone secretion (Ryan et al., 1994), thyroid stimulating hormone secretion (Puig-Antich, 1987), melatonin and prolactin secretions (Waterman et al., 1994), high cortisol levels (Herane-Vives et al., 2018), or decreased growth hormone production (Dahl et al., 2000)".

The beginning of changes in adolescence and the accompanying hormonal changes and physical changes need consideration since it has been anticipated as dangers related with an expanded destiny for depression (Reinecke and Simons, 2005).

- **"Sleep Disorders"**

Disturbed patterns of sleep arise a number of problems which are most often linked with situation of antisocial lifestyles, communitydeficiency, employment problems, nerve-racking life and disturbed measures that could be separation , migration,

divorce, altered life routine or deprived working surroundings(Garbarino et al., 2016).

These sleep disorders are associated and pile up to the cause and development of depression. The pattern of insufficient sleep affects the hippocampus which is a small brain part vital for memories storage, and exposure to neurotoxic challenge, leading to a consequential net decline of gray matter in the hippocampus to the left orbito frontal cortex (Novati et al., 2012).

The studies of Franzen and Buysse (2008) shape the bidirectional relations and relationships between disturbed sleep, mainly insomnia and depression making it difficult to distinguish. However it is unclear whether depression is the reason causing slumber disturbances or maybe chronic sleep conflict direct to the symptoms which leads to the appearance of depression. (Franzen and Buysse, 2008).

- **"Genetic Factors"**

Depression tends to run in some families and could be a hereditary reason of occurrence. However the extent to which this could be yet another reason is still not surely known. Some ponders have demonstrated the job of hereditary qualities in the depression beginning (40%) (Scourfield et al., 2003). The genetic abnormalities in serotonergic transmission have been reportedly linked to causes of depression. The (5-HTTLPR) which is a serotonin-linked polymorphic region is a degenerate repeat in the gene which helps in coding for the (SLC6A4) which is a serotonin transporter. The s/s genotype is connected with a reduction in serotonin expression, which marks to be linked to an increased liability to depression (Caspi et al., 2010).

- **“Psychological Theories”**

This area features the assorted mental speculations which endeavor to clarify the depression marvel. Depression is a complex disorder abstract to some of different variables, and it is still far-fetched to decide or concentrate on a single reason.No single theory can as such give details about its etiology and persistence.

- **“Attachment-Informed Theories”**

Attachment theory was given by Bowlby (1976) to consign precise conceptualization of human beings' tendency to set up well-built and prolonged emotional ties and relationships with other people.

“Bowlby'smodel of attachment postulates the vulnerability to depression begins from early experiences of a person that were futile in satisfying the child's needs and longing for protection, concern and comfort, and now from the existing condition of their intimate relations (Bowlby, 1969, 1973, 1988)”.

“Early adverse experience can prove as contributing factors to the instability in early attachment, that could be now connected with liability for depression (Cummings and Cicchetti, 1990; Joiner and Coyne, 1999).”

“Associations and relations between self-doubting attachment in children and negative self-concept, sensitivity and fear for loss, and an increased potential for depression in childhood and adolescence have been reported (Armsden et al., 1990; Koback et al., 1991; Kenny et al., 1993; Roelofs et al., 2006; Allen et al., 2007; Chorot et al., 2017)”

- **“Behavioral Models”**

The first explanations proposed that depression occur due to the deficiency of strengthening procedures of previously resistant behaviors (Skinner, 1953; Ferster, 1966; Lewinsohn, 1975), an excess of averting behaviors and lack of certain positive reinforcement (Ferster, 1966) or the loss of effectiveness of positive reinforcements (Costello, 1972).

A person with depression at first receives a lot of care and attention from his/her family and friends, and behavioral patterns and practices such as constant crying, complaining or expressions of guilt are reinforced. These depressive behavior tend to increase with time thus affecting the relationship with the person that becomes aversive, and the other people who used to support and accompany the person begin to keep away from being with him/her that ultimately piles up infuriating his/her condition of depression (Lewinsohn, 1974).

- **“Self-Control Model”**

The theory is based on the assumptions that “depression is caused due to the loss in the self-control process, consisting of the major phases: self-evaluation, self-monitoring and self-administration of the induced consequences (Rehm, 1977; Rehm et al., 1979)”. In the phase of self-monitoring, the person tends to believe in only the negative events and recognizes the instantaneous, short-term, sudden consequences. The self-evaluation phase emphasizes on the facts that the depressed persons create unrealistic and impractical assessment criteria and imprecisely attribute their failures and successes. If the process of self-evaluation comes out as negative, the consequences phase of the person in the self-administration tends to indulge little in self-reinforcement and repeatedly in self-punishment.

- **“Interpersonal Theory”**

The sculpt is strongly correlated to attachment theories, which aims at identifying and finding solutions for person’s struggle with depression in his/her interpersonal operation. The theory suggests that the difficulties which are experienced are related to unsettled misery, interpersonal conflicts, conversion in role and inter-personal deficits (Markowitz and Weissman, 1995).

Milrod et al. (2014) states that physical and mental attachment at some stage in early childhood has a potential to leave serious outcomes for an adults' capability to experience and internalize encouraging relationshipsin the predominance of depression.

- **“Stressful Life Events”**

Studies that are conducted on the adult population have claimed that 60 to70% of depressed adult individuals have experienced one or few demanding events at some point in the year former to the occurrence of major depression (Frank et al., 1994).Certain self-effacing associations are found between stressful life proceedings and depression in children and adolescent(Williamson et al., 1995). A study by, Shapero et al. (2013) found that individuals who had faced serious emotional maltreatment during some point in their childhood experience elevated levels of depressive symptoms when combined with existing stressors in life.

The beginning of depression triggered by major tenseprocedures, along with continuous minor life events (school dropout, a parent losing his/her job, financial crises in the family, or the continual illness of a family member) may also influence the appearance of depressive symptoms.(Sokratous et al. 2013)

Certain ongoing inevitable life events such as the death of any loved ones, separation of parents, could be the reasons linked with the beginning of depression in early part of childhood (Reinherz et al., 1993 .) The ongoing traumatic events in life relate to early commencement of depression based on information gathered from self-reports, making the process difficult to conclude the contributory relationship, as the events could be both the fundamental reason and outcome of depression. (Birmaher et al. 1996)

On the other hand, it is not important that everyone showing this type of disturbing experience becomes depressed. Individuality of a person and the instant at which these events happen or take place are both concerned with the connection between depression and traumatic life events, even though serotonergic functioning, the biological factors also exercise an influence. (Caspi et al., 2010)

- **"Sociocultural Models"**

The cultural variables like acculturation and enculturation are also accountable for the manifestation of depressive symptoms. In acculturation, structural changes like economic, political acculturation and, and demographic are experiential, alongside the changes in common psychologicalbehaviour (Casullo, 2001). Some studies show the relationship between increased suicidal rates with economic downturn (Chang et al., 2013; Reeves et al., 2014). Enculturation tends to take place when the adult age group or generation invites, induces or pressurises the younger generation to accept conventional mindsets and behaviours.

The influence of culture and family on a person was tested with the Hispanic students born in the United States, as an acculturation, cultural values and family functioning model to study the depressive symptoms. The results showed the extent

to which family conflict and solidity were allied to depressive symptoms of a person.(Lorenzo-Blanco et al. 2012)

The upbringing of children and the parenting system has been acknowledged as a main factor in children's and adolescents' psychosocial adjustment and regulation. Therefore, the significance of family interactions with the individual during the beginning of depressive symptoms cannot be ignored or disregarded. (Lengua and Kovacs, 2005)

In brief, the different theories tend to highlight that depression may be due to:

(1) Biological reasons;

(2) Apprehensive and unconfident connections;

(3) Deficient support from previously-reinforced behaviours;

(4) Unconstructive relationships with others and the following depressing consequences;

(5) Attributions made by the person about themselves and their future; and

(6) Sociocultural changes.

However it is seen that, likely there is not any theory that can sufficiently entirelydescribe the onset and progression of depression, even though at present, unconstructive interpersonal relationships and relations with surroundings and Sociocultural changes like political, economic and demographic.

The various methods of depression assessment :

- The patient health questionnaire: Theseverity of depression can be screened and diagnosed using PHQ-9. The PHQ-9 is abrief self- report tool that

recognises the major depressive symptoms. This tool states the rate of the symptoms which accounts for the scoring severity directory

- Beck depression inventory: The severity of depression can be measured using the **Beck Depression Inventory** (**BDI**, **BDI-1A**, **BDI-II**), which is a set of 21 multiple-choiceself evaluation questions. The BDI-II is designed for 13 and above age group, and is composed of symptoms of depression such as despair and irritability, cognitions such as responsibility of any blame or guilt and prevalence of physical symptoms such as exhaustion, weight loss, change in appetite.

- Zungself rating depression scale: The anxiety levels can be determined based on a 20-item self-report evaluation mechanism. The statements that a person answers should show the extent to which it applies within a time of one to two weeks before the test. Few of the questions are negatively asked to overcome the trouble of set response. Overall assessment is done by calculating the total score.
- Centre for epidemiologic studies depression scale: The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) is frequently used freely accessible self-evaluation method to determine the depressive symptoms.

4.AIM AND OBEJCTIVE

4.1Aim

Aim: To determine Depression and its analysis in Adolescent age group and stress survey

4.2 Objective:

1) Preparation of questionnaire for the analysis and evaluation of depression among the adolescent age group.

2) Conducting surveys in different cities with the help of these questionnaires within a defined sample population (age group, working conditions, and otherSimilarities).

3) Calculating the scores and analysing the obtained data through the defined ranges of depression scale (normal, mild, moderate, severe) and representing in the form of graphs and pie-charts using MS-Excel.

4) Inferring to range of depression found relatively in the two cities.

5.METHODOLOGY

- Study site and population

The first sample size of 25 students was chosen. The students belonged to the adolescent age group (17-18), belonging to the same stream, same batch/class and to the same institute (Solan , Himachal Pradesh, India) and sharing the same working conditions. With the help of the questionnaire that was prepared the population of 25 students were surveyed on 1 November, 2018.

- Preparation of first sample questionnaire:

For preparing a questionnaire for the adolescent age group it is important that we first learn about the difficulties, mindset, behavior and the lifestyle conditions that the age group follows. Taking into consideration these factors and referring to various depression and stress related questionnaires and depression diagnostic criteria, a questionnaire containing 25 questions relatable to the adolescent age group was prepared.

The questions dealing to the daily routine of an individual, his/her patterns of sleep, appetite, ability to concentrate, ability to make decisions along with certain personal questions relating to his/her expectations from him/her, relationship with friends and family, etc.

The time allotted for the questionnaire was 10-15 minutes per person. This was done so that the answers remained as spontaneous responses and time does not play a factor in fabricating response by trying to answer that would give a minimum total rather than choosing what comes first in mind without any further contemplations.

Another important feature of the questionnaire is to keep the part about sharing details about the individual taking the test as confidential if the person is not comfortable in doing so. This helps in hiding the identity of the person along with the fact that when a person is sure that his/her name or details would not be highlighted, the extent to which he/she would answer would be truthfully as it involves the least risk in doing so. The quality of data or information collected thus is of more significance for statistical analysis.

The sample questionnaire that was prepared had multiple options to each question, therefore the scoring pattern was quite predictable in accordance to the order of options given, for example: a question has four(a,b,c,d) options as answers out of which option “a” represented score as 1, “b” as score 2, “c” and “d” as 3and 4 respectively. At the end the total of each student’s questionnaire was calculated. The score obtained by each student showed the range of depression that student lies in.

There were four depression ranges that were allotted according to the score an individual would get. The standard ranges were as follows:

1) Normal: a score less than or equal to 25 out of 100.
2) Mild: a score greater than 25 and less than equal to 50 out of 100.
3) Moderate: a score greater than 50 and less than equal to 75 out of 100.
4) Severe: a score greater than 75 and less than equal to 100.

The sample questionnaire which was prepared had multiple options in a predictable format in which the individual could easily decipher the scoring scheme and the chances of false result were likely. Therefore an individual taking the questionnaire in a limited time that was provided (10-15 minutes per person for 25 questions with

four options) could still learn the pattern and try to avoid the options to questions with greater score in order to keep their total to a minimum .

- Questionnaire with random options

In order to avoid the above problem that could occur in some cases, an alternative method was adopted and thus the sample questionnaire that was made earlier was modified according to the concerns that came up.

1) The four options to every question were picked up and randomly shuffled. The idea behind this step was to make sure that the individual taking the questionnaire for depression analysis thinks and reads each option and then chooses the most apt one.
2) The same was done for the rest 25 questions.
3) The score for each option now was evaluated by matching with the sample questionnaire as the process of randomization of options make the scoring and totaling at the end a bit cumbersome.

- Testing with the modified questionnaire

The efficacy of this modified questionnaire was checked. The same sample population of 25 students who that earlier taken the test with the sample questionnaire were chosen. This was done in last week of November,2018 so that the difference in the answers could be checked and compared for each individual who had taken both the questionnaires. Surprisingly, it was seen that the total for the modified questionnaire was different as compared to the sample questionnaire.

Therefore, this modified questionnaire was taken as a standard questionnaire for conducting further surveys.

- Data collection and quality control

The data through structured questionnaire method was collected from the sample size that was chosen. It is important that for each survey that is being conducted the sample size remains less for accurate analysis of result and so that the questionnaire data could be double checked and then analyzed statistically.

- Statistical analysis

The data that was collected by conducting surveys was analyzed and represented in the form of graphs and pie charts using MS- excel. The data was distributed within the defined ranges as already mentioned: normal, mild, moderate and severely depressed. A comparative study between two cities: Solan, Himachal Pradesh and Lucknow, Uttar Pradesh was done.

6. RESULTAND DISCUSSION

6.1Result:

→ **Survey 1:**

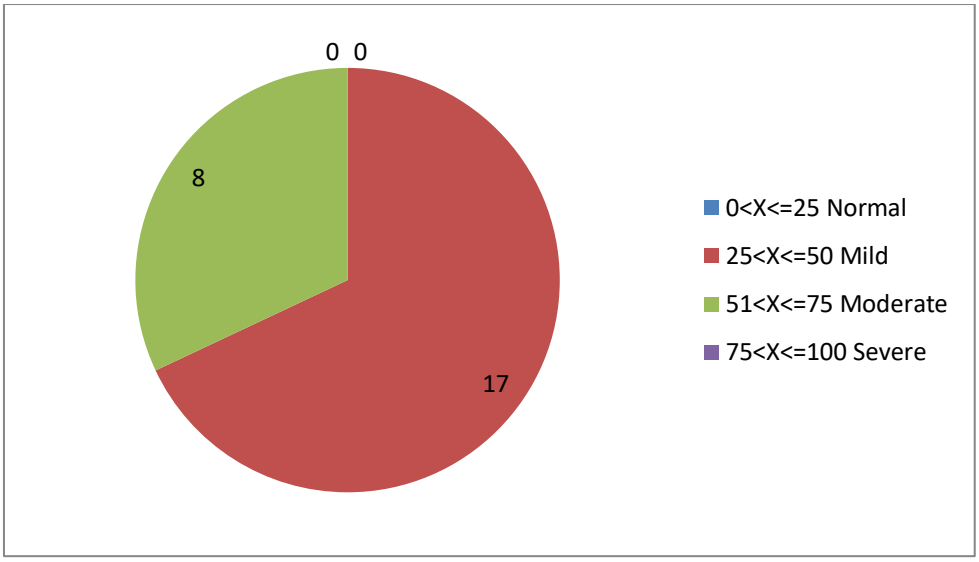
No of students	Score
1	33
2	35
3	38
4	38
5	38
6	39
7	39
8	41
9	41
10	42
11	47
12	48
13	48
14	48
15	48
16	49
17	50
18	52
19	54
20	57
21	57
22	64
23	67
24	68
25	73
Total	1214

Table 1

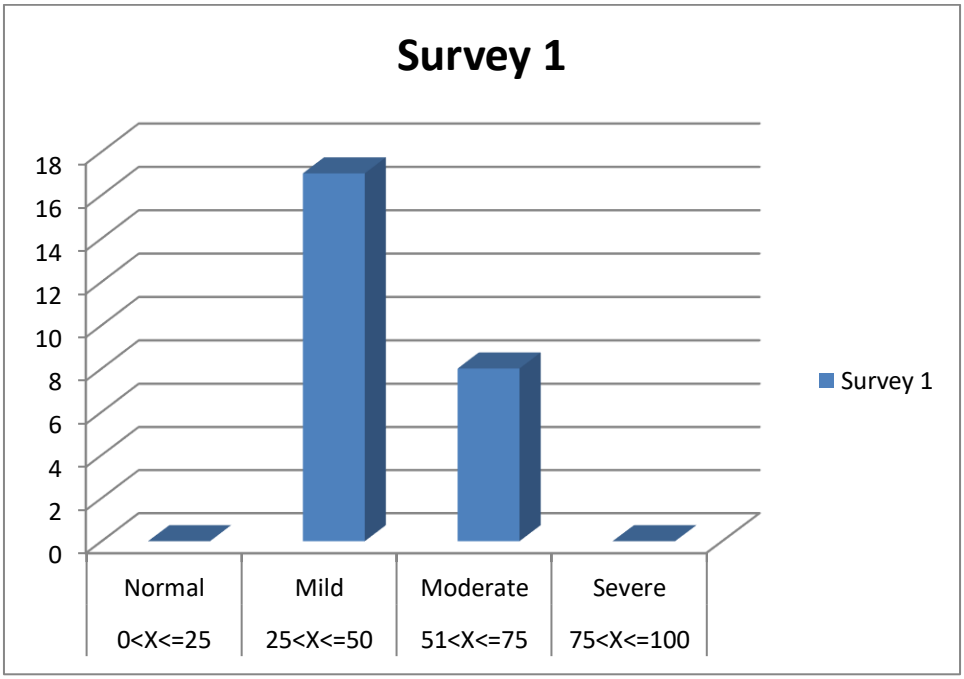
Range Defined	**Types**	**Values**	**% age**
0<X<=25	Normal	0	0
25<X<=50	Mild	17	68
51<X<=75	Moderate	8	32
75<X<=100	Severe	0	0
Total		25	100

Table 2

- A group of 25 individuals was chosen as the sample.
- Survey was conducted in an institute in Solan, Himachal Pradesh using the sample questionnaire.
- The data was compiled using MS-Excel.



- Fig 1



- Fig:2

➢ Inference:

- That around 68% children are under mild depression
- Around 32% of them are in moderate depression
- None were found normal.
- No one was suffering from severe depression

→ **Survey 2:**

No of Students	Score
1	27
2	35
3	37
4	37
5	37
6	37
7	42
8	43
9	43
10	45
11	46
12	46
13	49
14	50
15	52
16	54
17	54
18	55
19	56
20	67
21	67
22	68
23	70
24	70
25	79
Total	1266

Table3:

Range Defined	Types	Values	% age
0<X<=25	Normal	0	0
25<X<=50	Mild	14	56
51<X<=75	Moderate	10	40
75<X<=100	Severe	1	4
		25	100

The range were set according to default values by HAM-D s

Table 4:

- A group of 25 individuals was chosen as the sample.
- Survey was conducted in an institute in Solan, Himachal Pradesh using the sample questionnaire.
- The data was compiled using MS-Excel.

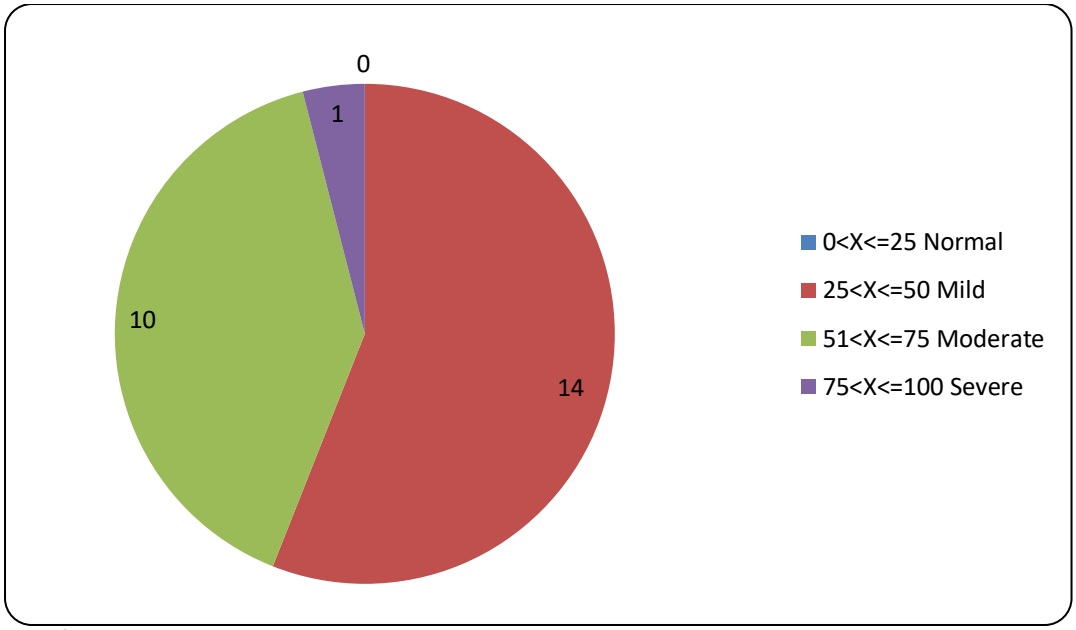


Fig 3:

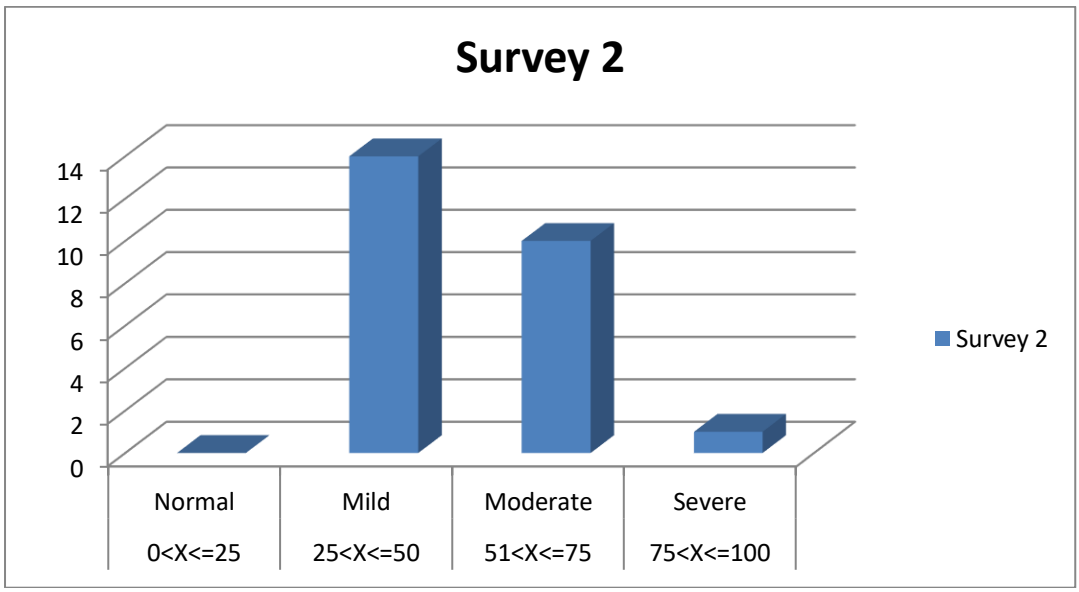


Fig 4:

- Inference:
  - That around 56% children are under mild depression
  - Around 40% of them are in moderate depression
  - None were found normal.
  - 4% of population was suffering from severe depression

→ **Survey 3:**

No of students	Score
1	32
2	32
3	32
4	35
5	36
6	38
7	42
8	43
9	44
10	45
11	45
12	45
13	46
14	47
15	47
16	49
17	49
18	49
19	49
20	50
21	53
22	54
23	60
24	60
25	61
Total	1143

Table5:

Range Defined	Types	Value	%
0<X<=25	Normal	0	0
25<X<=50	Mild	20	80
51<X<=75	Moderate	5	20
75<X<=100	Severe	0	0
Total		25	100

The range were set according to Ham-D scale

Table6:

- A group of 25 individuals was chosen as the sample.
- Survey was conducted in a school in Lucknow, Uttar Pradesh using the sample questionnaire.
- The data was compiled using MS-Excel.

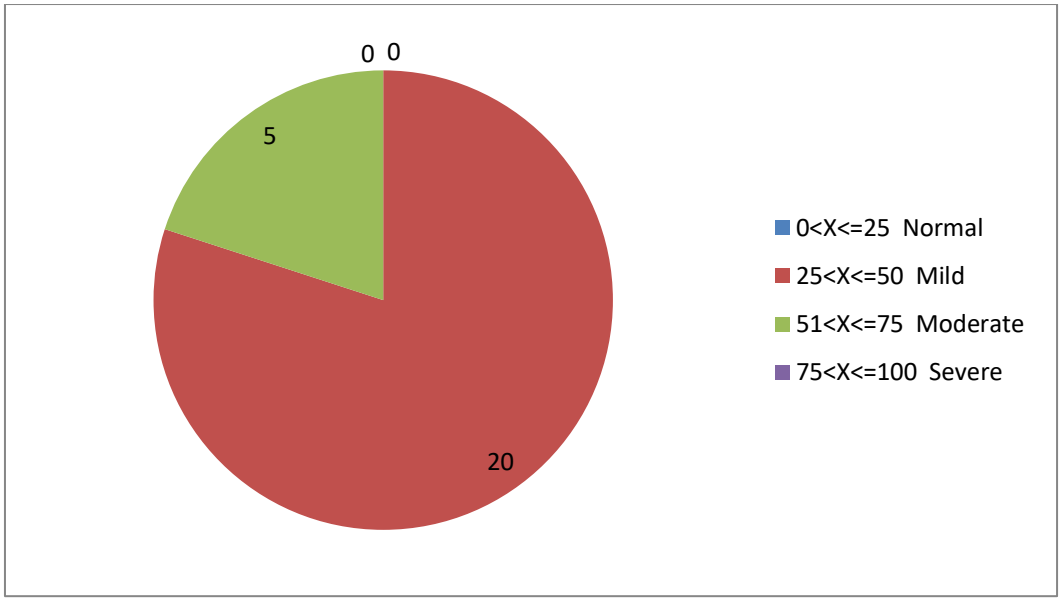


Fig5:

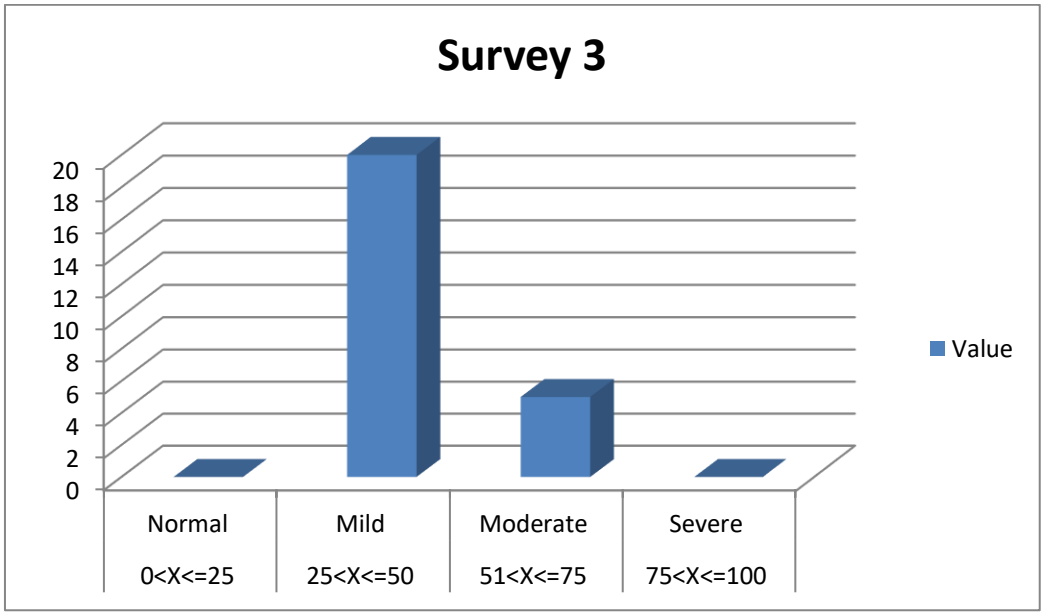


Fig 6:

- Inference:
    - That around 80% children are under mild depression
    - Around 20% of them are in moderate depression
    - None were found normal.
    - No one was suffering from severe depression..

→ **Survey4:**

No of students	Score
1	32
2	33
3	35
4	35
5	35
6	35
7	36
8	36
9	36
10	39
11	40
12	40
13	41
14	43
15	44
16	45
17	45
18	45
19	46
20	47
21	49
22	50
23	50
24	54
25	55
Total	1046

Table 7:

Range Defined	Types	Value	% age
0<X<=25	Normal	0	0
25<X<=50	Mild	23	92
51<X<=75	Moderate	2	8
75<X<=100	Severe	0	0
Total		25	100

Table 8:

- A group of 25 individuals was chosen as the sample.
- Survey was conducted in a school in Lucknow, Uttar Pradesh using the sample questionnaire.
- The data was compiled using MS-Excel.

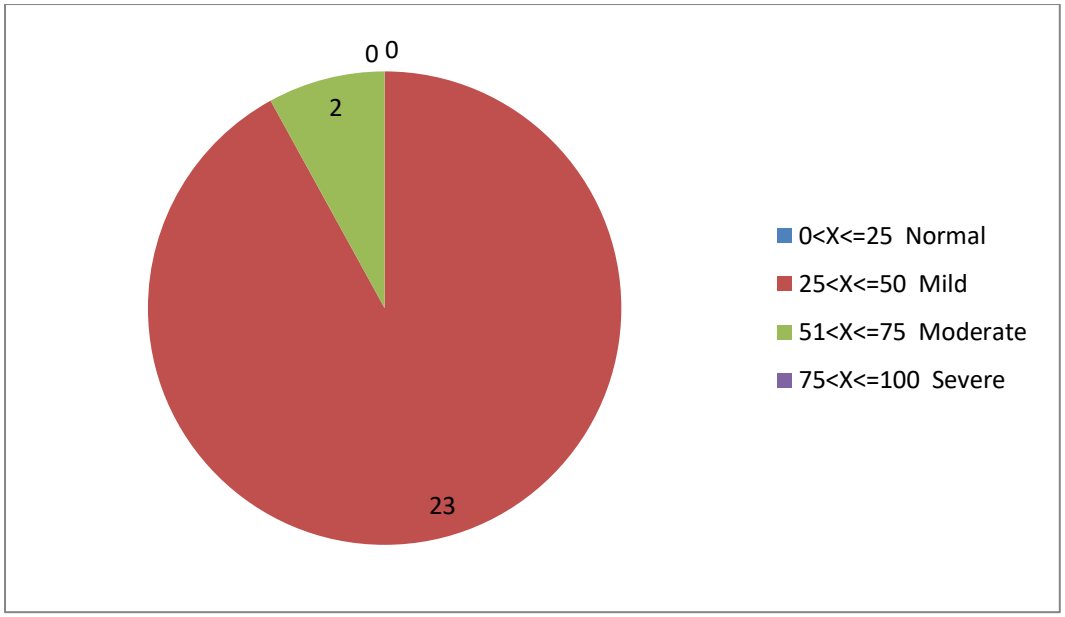


Fig 7

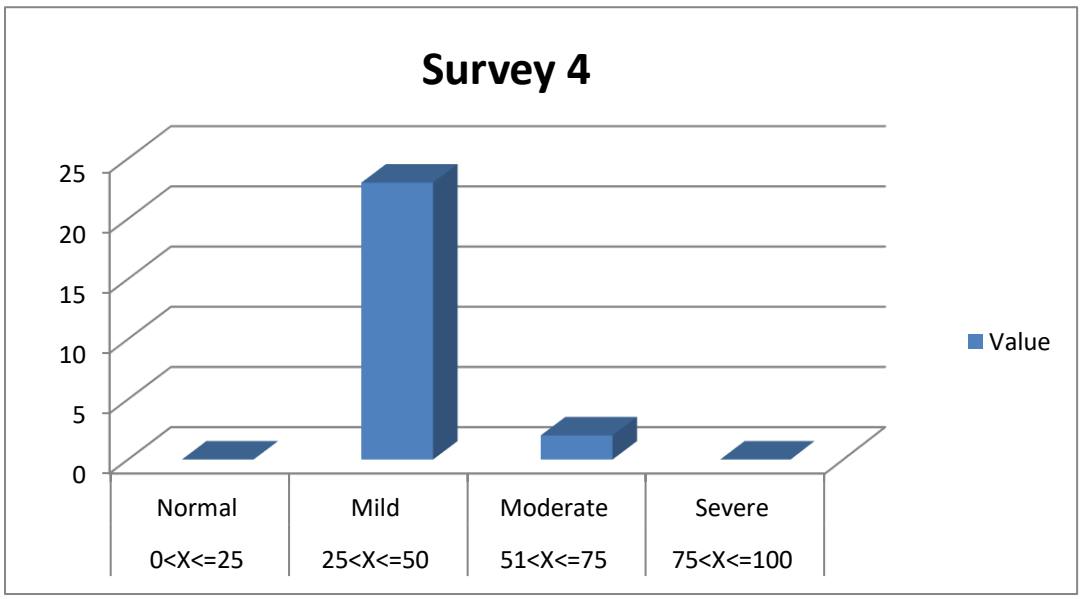


Fig 8:

- Inference:
    - That around 92% children are under mild depression
    - Around 8% of them are in moderate depression
    - None were found normal.
    - No one was suffering from severe depression..

→ Survey 5:

No of students	Score
1	25
2	30
3	33
4	33
5	35
6	36
7	38
8	40
9	42
10	45
11	48
12	49
13	50
14	54
15	54
16	55
17	59
18	60
19	62
20	63
21	64
22	66
23	69
24	70
25	72
Total	1252

Table 9:

Range Defined	Types	Value	% age
0<X<=25	Normal	1	4
25<X<=50	Mild	12	48
51<X<=75	Moderate	12	48
75<X<=100	Severe	0	0
Total		25	100

Table 10:

- A group of 25 individuals was chosen as the sample.
- Survey was conducted in a school in Lucknow, Uttar Pradesh using the sample questionnaire.
- The data was compiled using MS-Excel.

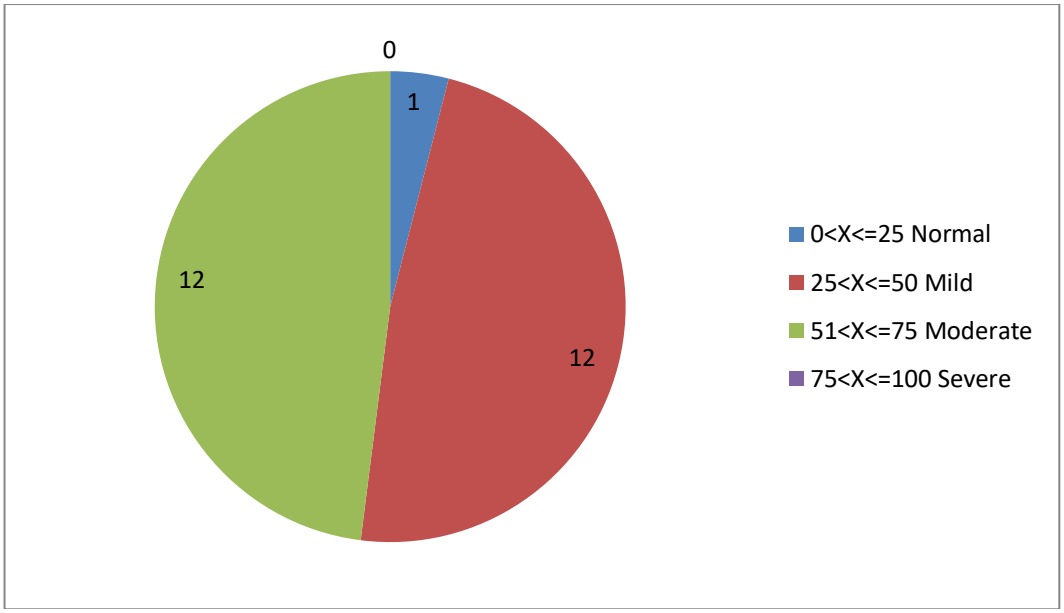


Fig9

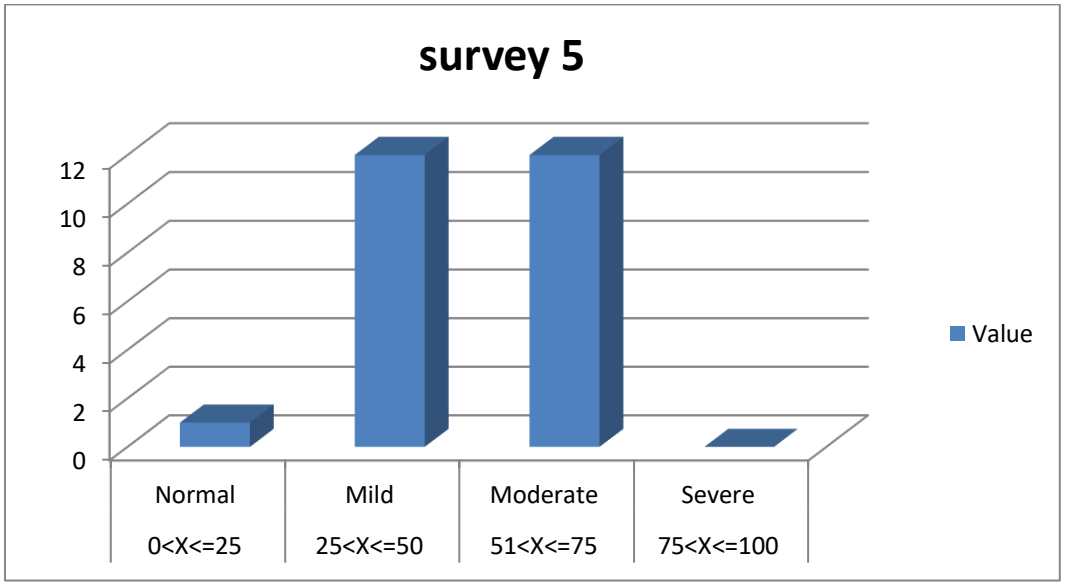


Fig10

- Inference:
    - That around 48% children are under mild depression
    - Around 48% of them are in moderate depression
    - Normalwere found to be 4%.
    - No one was suffering from severe depression..

→ Survey 6:

no of students	score
1	28
2	34
3	34
4	35
5	37
6	38
7	38
8	38
9	39
10	39
11	40
12	40
13	41
14	41
15	42
16	43
17	44
18	44
19	45
20	45
21	47
22	47
23	50
24	54
25	58
Total	1041

Table 11

Table 12

Range Defined	Types	Value	% age
0<X<=25	**Normal**	**0**	**0**
25<X<=50	**Mild**	**23**	**92**
51<X<=75	**Moderate**	**2**	**8**
75<X<=100	**Severe**	**0**	**0**
		25	**100**

- A group of 25 individuals was chosen as the sample.
- Survey was conducted in a school in Lucknow, Uttar Pradesh using the sample questionnaire.
- The data was compiled using MS-Excel.

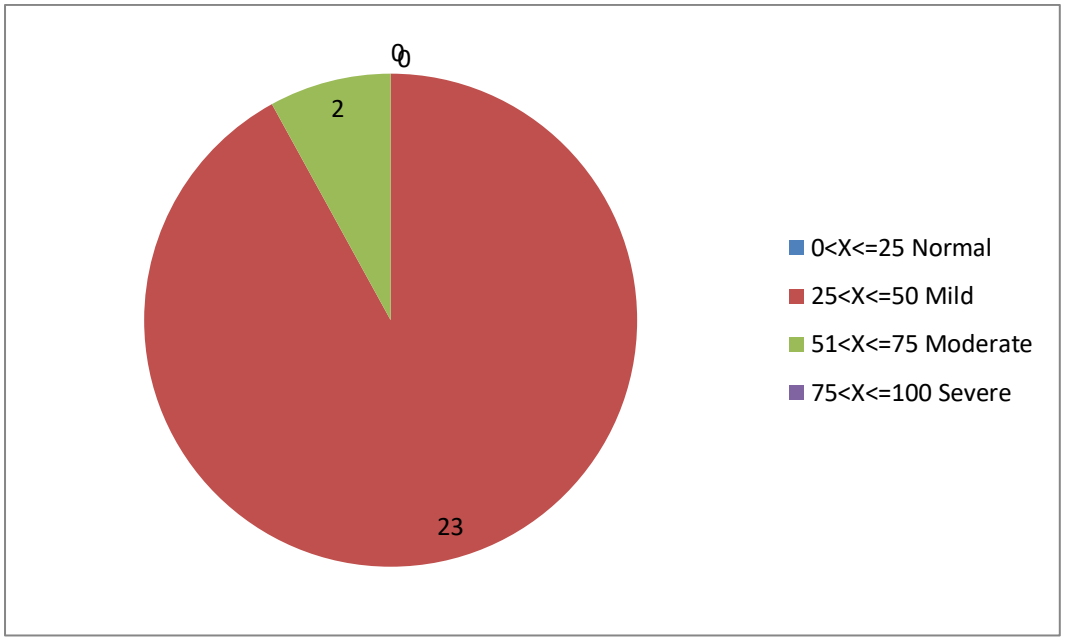


Fig 11

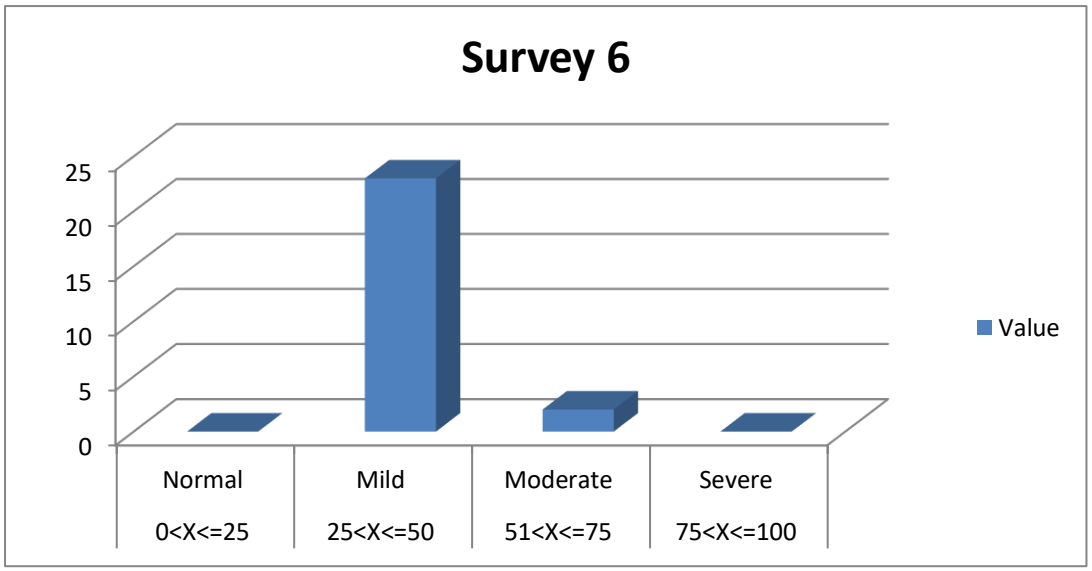


Fig12

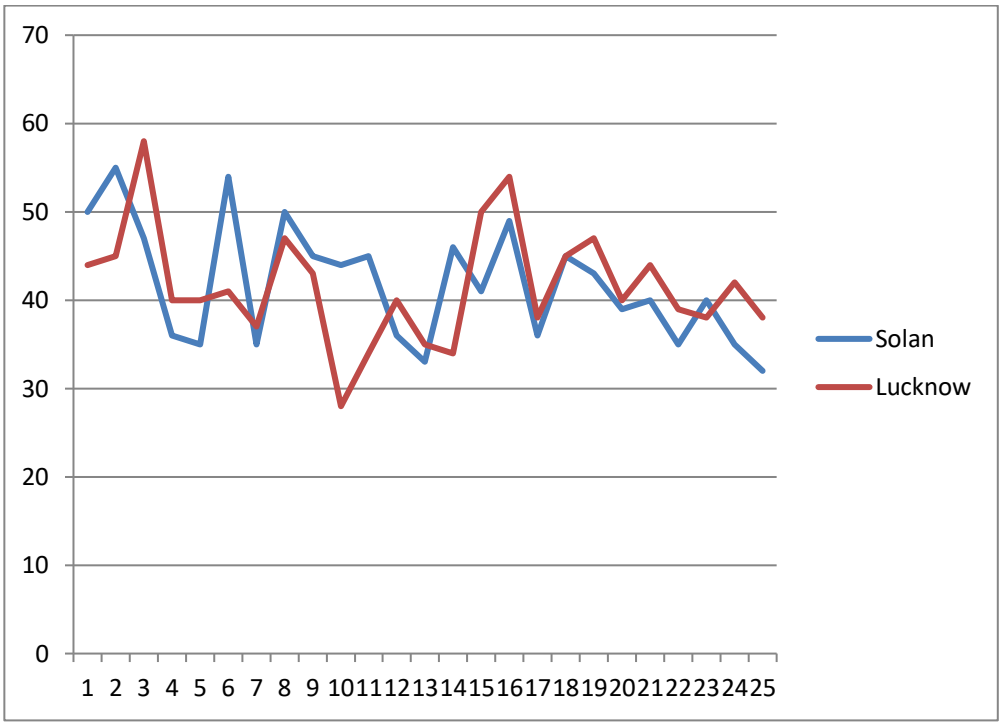
- Inference:
    - That around 92% children are under mild depression
    - Around 8% of them are in moderate depression
    - Normalwere found to be 0%.
    - No one was suffering from severe depression..

6.2Discussion:

Solan	Solan	Lucknow	Lucknow
1	50	1	44
2	55	2	45
3	47	3	58
4	36	4	40
5	35	5	40
6	54	6	41
7	35	7	37
8	50	8	47
9	45	9	43
10	44	10	28
11	45	11	34
12	36	12	40
13	33	13	35
14	46	14	34
15	41	15	50
16	49	16	54
17	36	17	38
18	45	18	45
19	43	19	47
20	39	20	40
21	40	21	44
22	35	22	39
23	40	23	38
24	35	24	42
25	32	25	38
Total	1046	Total	1041

- Two groups of 25 children from two different cities of Lucknow and Solan were taken into consideration.

- The children were much affected with depression in Lucknow as compared to children studying in Solan.



- On finding the average depression ratio in the student's stats of Solan District was much better in comparison to Lucknow.
- The depression caused is due to many factors as mentioned above like environmental factors, social factors, economical factors, etc.
- Long time stress leads to depression and the children and adolescence have difficult to differentiate between these two conditions.

7. Suggestions

The depression in adolescent and any age group need to paid attention and cannot be just overlooked.

The working conditions, family relationships, are to be focused in order to lessen the extent of depression as a major disorder.

Children need special care and attention and should not be ignored. Ignorance at this stage of life results in higher risks of suffering.

To avoid depression in schools, each school should hire a counselor so that a student can talk freely to the person concerned if not comfortable talking to a known person.

Family relationships have an impact on the person as well. Therefore, parents should try and talk things out with their children and not keep to themselves as this age group needs to be felt understood and accepted.

8. Conclusion

The adolescent population of today suffers from the symptoms of depression with the exact cause of the disease not known.

The adolescent population of Lucknow, Uttar Pradesh was found to be more depressed as compared to the adolescent age group of Solan, Himachal Pradesh.

The majority of the adolescent population was found in the category of mild depression, followed by moderate depression.

Out of the 6 surveys that were conducted, 4% of the populations in the survey 5 were in the normal range while in the rest of the remaining surveys there were no individuals in the normal category.

In the survey 2, 4% of the population was suffering from severe depression when conducted by the standard questionnaire.

For further studies large sample size is required and data should be analyzed through a statistical approach.

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Appendix

Sample Questionnaire:

Depression Assessment Scale

Note: *Please answer the following question correct to best of your knowledge. All the data submitted by you will be kept confidential and will not be shared with anyone without your prior consent.*

Name: School:
Age: Gender:
Occupation: Phone No.:
Address: Email:
Place/City:

1. How are you feeling these days?
a) I am very happy
b) I am feeling happy
c) I am feeling sad
d) I am feeling very sad and no one can make me happy

2. What are you feeling about approaching time/future?
a) I will achieve success and it will be good
b) I feel that the future will be a little tough and I need to work really hard
c) I feel that there is nothing much left to do in future
d) I feel that nothing will ever improve in future and it may become even worse

3. How much you enjoy your hobbies?
a) I love them and I get immense satisfaction while doing things I love
b) I enjoyed doing those things before but not now
c) I do not get any satisfaction out of anything now
d) I do not want to indulge in my hobbies and they are dissatisfying and boring now

4. How do you feel about your mistakes in life?
a) I do not feel guilty
b) I feel guilty sometime for some things
c) I feel guilty most of the time
d) I feel guilty all of the time and keep thinking about them often

5. What are your expectations from yourself?
a) I feel hopeful for myself and don't feel any disappointments
b) I feel disappointed with myself and my life sometimes
c) I feel life is very hard and I feed disgusted
d) I feel that life is very harsh and I hate myself for being like this

6. How do you compare yourself to your friends/classmates etc.
a) I feel that I am same as other and my life is as good as my friend
b) I often scold myself for my weakness and mistakes
c) I often blame myself for all my faults
d) I feel that I am responsible for every wrong thing that happen to me

7. Have you ever tried to end your life?
a) It is a stupid idea
b) Few times I feel like killing myself, but I know this is not a solution to any problem
c) I often think about this and I am hoping that time will change
d) I will do it if I ever get a chance

8. How often do you cry alone?
a) I am strong person and I never cry alone
b) I cry occasionally alone
c) I cry almost every day when I am alone
d) I cry alone and sometimes feel like crying when people are around

9. How often do you get irritated?
a) Sometime I get irritated like before
b)These days I am bit more irritated than before
c)I am irritated and annoyed most of the time
d)I am irritated by things and people around me all the time

10. Do you want to spend time with family and friends?
a) I love the company of friends and family members
b) I am less interested in spending time with them like I did before
c) I have lost interest in them and I try to avoid them
d) They always irritate and make me feel useless. I rather try to spend time by myself

11. Are you capable of taking decisions comfortably?
a) I have no problem in taking all the decisions of my life
b) I take high precautions before taking any decision of my life
c) I am having some difficulty in taking decisions and implementing them
d) I can't take decisions of my life and I feel scared to take a step alone

12. What do you feel about your looks?
a) I feel good about myself and I am same as before
b) I think these days I am looking much older and unattractive
c) I think my appearance has changed and I do not look good
d) I do not feel comfortable in public and I feel ashamed of my looks

13. How much you have to motivate/push yourself to do something?
a) I can work and play like I did before
b) I need an extra effort to motivate myself to do things than before
c) I have to push very hard to make myself do things than before
d) I do not want to do anything often

14. How often do you sleep?
a) I have a normal sleep timings like before
b) I find it a bit difficult to have a proper sleep than before
c) I wake up at night/early morning and find it very difficult to get sleep again
d) I am not able to sleep properly. I spend many hours in the bed awake and I am not able to sleep again

15. How do you feel about your physical potentials?
a) I am fit like before and I don't get more tired than before
b) I get tired more easily than before
c) Every task is very tiring and I get tired from every task
d) I feel very tired to do anything

16. How often do you feel hungry?
a) My hunger is normal like before
b) My hunger is not good like it was before
c) I do not feel much hungry
d) I do not feel hunger and I don't want to eat anything

17. Have you lost weight in recent times?
a) My weight is normal like before as it used to be
b) I have lost some weight (2-3 kg)
c) I have lost about 5-8 kg
d) I have lost more than 10 kg

18. Do you feel that your family is supportive when you face any problems?
a) They always support me in every problem
b) They help me out mostly
c) They show little interest in my problem
d) They never help me with my problems and I don't feel like sharing my problems

19. Do you think that you can focus on different tasks without distracting thoughts?
a) I can focus on every task like before
b) I feel a bit difficult to focus and keep unwanted thoughts out
c) I feel very difficult to focus on my tasks
d) I am always distracted by unwanted thoughts and I am not able to focus on anything

20. Do you feel lonely?
a) I never feel lonely
b) I feel lonely sometimes
c) I often feel lonely
d) I always feel lonely even when people are around me

21. Are people around you harsh on you?
a) I feel that they are normal like before
b) I feel that sometimes they are harsh on me
c) I feel that they behave very harshly with me
d) They are very hash with me and therefore I avoid them

22. Do you feel that your parents/family/teachers/friends praise you for your qualities?
a) I get praised whenever I achieve something
b) I feel that they praise me sometimes
c) I mostly do not feel any appraisal from them
d) I feel that they do not like anything in me and they never praise me

23. How do your friends at school or at home treat you?
a) They are very friendly and love to spend time with them
b) Some of them do not treat me respectfully
c) Most of them do not treat me respectfully
d) All of them disrespect me and hurt me

24. Do you think you can score good marks if you work hard?
a) I feel that I can score good marks if I work hard
b) I feel that I may be able to score good marks if I work hard
c) I feel that it is very difficult for me to score good marks
d) I feel that it is impossible for me to score good marks

25. Are you short tempered?
a) No, I am not short tempered
b) Sometimes I am short tempered
c) I feel that I am becoming short tempered often
d) I am very short tempered

Standard Questionnaire:

Depression Assessment Scale

Note: Please answer the following question correct to best of your knowledge. All the data submitted by you will be kept confidential and will not be shared with anyone without your prior consent.

Name:
Age:
Occupation:
Address:
Place/City:

School:
Gender:
Phone No.:
Email:

1. How are you feeling these days?
   - I am feeling sad
   - I am very happy
   - I am feeling very sad and no one can make me happy
   - I am feeling happy

2. What are you feeling about approaching time/future?
   - I feel that the future will be a little tough and I need to work really hard
   - I feel that nothing will ever improve in future and it may become even worse
   - I feel that there is nothing much left to do in future
   - I will achieve success and it will be good

3. How much you enjoy your hobbies?
   - I enjoyed doing those things before but not now
   - I love them and I get immense satisfaction while doing things I love
   - I do not get any satisfaction out of anything now
   - I do not want to indulge in my hobbies and they are dissatisfying and boring now

4. How do you feel about your mistakes in life?
   - I feel guilty most of the time
   - I do not feel guilty
   - I feel guilty sometime for some things
   - I feel guilty all of the time and keep thinking about them often

5. What are your expectations from yourself?
   - I feel that life is very harsh and I hate myself for being like this
   - I feel disappointed with myself and my life sometimes
   - I feel hopeful for myself and don't feel any disappointments
   - I feel life is very hard and I feed disgusted

6. How do you compare yourself to your friends/classmates etc.
   - I feel that I am responsible for every wrong thing that happen to me
   - I often blame myself for all my faults
   - I often scold myself for my weakness and mistakes
   - I feel that I am same as other and my life is as good as my friend

7. Have you ever tried to end your life?
   - I will do it if I ever get a chance
   - Few times I feel like killing myself, but I know this is not a solution to any problem
   - I often think about this and I am hoping that time will change
   - It is a stupid idea

8. How often do you cry alone?
   - I cry alone and sometimes feel like crying when people are around
   - I cry occasionally alone
   - I cry almost every day when I am alone
   - I am strong person and I never cry alone

9. How often do you get irritated?
   - I am irritated by things and people around me all the time
   - These days I am bit more irritated than before
   - I am irritated and annoyed most of the time
   - Sometime I get irritated like before

10. Do you want to spend time with family and friends?
   - I am less interested in spending time with them like I did before
   - They always irritate and make me feel useless. I rather try to spend time by myself
   - I have lost interest in them and I try to avoid them
   - I love the company of friends and family members

11. Are you capable of taking decisions comfortably?
   - I can't take decisions of my life and I feel scared to take a step alone

- I take high precautions before taking any decision of my life
- I am having some difficulty in taking decisions and implementing them
- I have no problem in taking all the decisions of my life

12. What do you feel about your looks?
- I think these days I am looking much older and unattractive
- I think my appearance has changed and I do not look good
- I do not feel comfortable in public and I feel ashamed of my looks
- I feel good about myself and I am same as before

13. How much you have to motivate/push yourself to do something?
- I have to push very hard to make myself do things than before
- I can work and play like I did before
- I need an extra effort to motivate myself to do things than before
- I do not want to do anything often

14. How often do you sleep?
- I find it a bit difficult to have a proper sleep than before
- I wake up at night/early morning and find it very difficult to get sleep again
- I have a normal sleep timings like before
- I am not able to sleep properly. I spend many hours in the bed awake and I am not able to sleep again

15. How do you feel about your physical potentials?
- I feel very tired to do anything
- I get tired more easily than before
- Every task is very tiring and I get tired from every task
- I am fit like before and I don't get more tired than before

16. How often do you feel hungry?
- I do not feel hunger and I don't want to eat anything
- My hunger is not good like it was before
- I do not feel much hungry
- My hunger is normal like before

17. Have you lost weight in recent times?
- I have lost some weight (2-3 kg)
- I have lost more than 10 kg
- I have lost about 5-8 kg
- My weight is normal like before as it used to be

18. Do you feel that your family is supportive when you face any problems?
- They never help me with my problems and I don't feel like sharing my problems
- They help me out mostly
- They show little interest in my problem
- They always support me in every problem

19. Do you think that you can focus on different tasks without distracting thoughts?
- I feel a bit difficult to focus and keep unwanted thoughts out
- I feel very difficult to focus on my tasks
- I am always distracted by unwanted thoughts and I am not able to focus on anything

20. Do you feel lonely?
- I feel lonely sometimes
- I always feel lonely even when people are around me
- I often feel lonely
- I never feel lonely

21. Are people around you harsh on you?
- I feel that sometimes they are harsh on me
- They are very hash with me and therefore I avoid them
- I feel that they behave very harshly with me
- I feel that they are normal like before

22. Do you feel that your parents/family/teachers/friends praise you for your qualities?
- I feel that they praise me sometimes
- I mostly do not feel any appraisal from them
- I get praised whenever I achieve something
- I feel that they do not like anything in me and they never praise me

23. How do your friends at school or at home treat you?
- They are very friendly and love to spend time with them
- All of them disrespect me and hurt me
- Most of them do not treat me respectfully
- Some of them do not treat me respectfully

24. Do you think you can score good marks if you work hard?
- I feel that it is impossible for me to score good marks
- I feel that I may be able to score good marks if I work hard
- I feel that it is very difficult for me to score good marks
- I feel that I can score good marks if I work hard

25. Are you short tempered?
- I am very short tempered
- Sometimes I am short tempered
- I feel that I am becoming short tempered often
- No, I am not short tempered