

# INVESTIGATING BROADER TERMS FOR DEPRESSION AND CONDUCTING ACADEMIC INVENTORY SURVEYS TO DETERMINE THE SEVERITY OF DEPRESSION.

**A Thesis Submitted In Partial Fulfillment  
of the requirement for the degree of**

**Bachelor of Technology**

**Biotechnology**

By

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**National Institute of Technology Rourkela**

## **Certificate**

This certifies that the research regarding thesis entitled "Investing broader terms for depression and conducting academic inventory surveys to determine the severity of depression " by Sher Singh Dalai in partial fulfillment of the prerequisites for a degree of Bachelor of Technology in Biotechnology Engineering in the division of Biotechnology and Medical Engineering, National Institute of Technology Rourkela is a real research work completed by him under my supervision and guidance..

To the best of my insight, the matter encapsulated in the report has not been submitted by anyone from other University/Institute for earning a Degree or Diploma.

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## Abstract

Depression considered as an affective disorder prevails among a majority of audiences we encounter around us. Despite the fact that it's atypical and significant issue, numerous individuals don't have much of a clue regarding depression. It is important to classify the disorder at an early state so that proper treatment and medication can be availed to the patient. The purpose of the study is to investigate the thoughts of suicide among adolescents affected by depression. This paper intends in investigating the exceptionally broad terms of depression, particularly initiation of depression in teenagers, suicidal risks, and eventually in providing us a survey result of depression within the academics. The severity or extent of depression was quantified analyzing data from certain standard questionnaires as Beck Depression Inventory (BDI- II), Major Depression Inventory (MDI), and The Hamilton Rating Scale for Depression (HRSD-29). Briefly, a sample of 100 students (43 B-tech Final Year students, 40 M-tech Final Year students and 17 Ph.D. students) were chosen from NIT, Rourkela for the inventory and were asked to attempt all the three sets. The subject extracted was assigned certain scores and these eventually were used to complete the survey with solidity. It was thus concluded that.

**Key words:** Depression, affective, questionnaire, suicide, adolescents.

## ***Chapter -1***

### ***Introduction:***

Depression defined clinically is said to affect body, thoughts, and state of mind in a patient and if untreated it may concern people around them. It has increasingly become so common now that some people go unnoticed. Depression can be depicted basically as a state of mind that is stamped by sentiments of low self-esteem or blame and a diminished capacity to appreciate life. In light of the extremely broad definition, it is evident why depression has been so prevalent. All people experience periods when they confront what may seem or appear to be tragic situations or times of hardship. The anxiety and temperaments that frequently follow, fit the passionate state that can be used in determining depression. The side effects frequently give rise to other physical and psychological issues. These may show signs of trouble, sadness, cynicism, diminishing capacity to take delight in common exercises, decreased vitality and essentialness, loss of interest in activity, loss of hunger, insomnia or sleep deprivation.

## *Chapter 2*

### *Literature Review*

Depression can be seen in a few structures and can be sorted based on its seriousness and viability. Taking in the seriousness and foundation for the depression helps us treat it successfully. It can be extensively grouped into -

**Dysthymia or Mild Depression:** It is a kind of ceaseless or depression of very mild nature that can persist over a certain period of time. Usually harmless yet could be aggravating if it continues over a stretch of time.

**Symptoms:** trouble in thoughts, inconvenience focusing, exhaustion, and changes in sleeping schedule and loss of interest in food.

**Treatment:** This depression, as a rule, reacts preferred to talk treatment over to solutions: however, a few studies propose that medication with talk treatment may prompt the best change.

**Major depression:** It is portrayed by the failure to appreciate life and experience delight. Left untreated, significant depression normally goes on for around six months. It is a repeating issue.

**Symptoms:** Feelings of trouble, desperation, furious upheavals, fractiousness or disappointment, even over little matters, loss of interest or joy in typical, a sleeping disorder or absence of slumber.



**Treatment:** Psychotherapy with proper drug and medication. If this doesn't work, then we can try for Electroconvulsive treatment (ECT) and repetitive Transcranial Magnetic stimulation. ECT utilizes electrical heartbeats and rTMS utilizes an uncommon sort of magnet to expand certain territories of brain action.

**Bipolar disorder or Mania:** It is otherwise called hyper depressive disorder is a cerebrum issue that causes surprising moves in temperament, vitality, movement levels, and the capacity to do regular errands.

**Symptoms:** Regular emotional episodes and behavioral changes. An individual with craziness will feel energized, indiscreet, euphoric, and loaded with vitality. Self-destructive contemplations or endeavors may accompany maniac depression.

**Treatment:** Diagnosis of bipolar issue considers a few elements and considers the self-reported encounters of the symptomatic individual, behavior abnormalities reported by relatives, companions or colleagues, and perceptible indications of disorder as evaluated by a psychiatrist, nurse, social worker, clinical therapist or other healthcare professional.

### **Depression in adolescents or teenagers:**

Depression in youths has customarily been comprehended with both psychotherapy and prescription: however late stresses in regards to the security of different prescriptions are driving individuals to look for psychotherapy as opposed to pharmaceutical. In one study, 48 young people experiencing real depression were set into a 12-week psychotherapy program. After the system closed, the information demonstrated that the "Psychotherapy prompted

more prominent lessening in depressive indications, change in social capacity and enhanced critical thinking" (Wagner, 2003). In any case, in subsequent studies it is demonstrated that albeit most remain depression- free or preferable off over before the first treatment, around 20% had a reoccurrence of depression (Wagner, 2003). So in spite of the fact that psychotherapy is not a changeless arrangement it is extremely viable in lessening suicide hazard, family push brought about from depression, and other general manifestations of depression.

**Depression and suicide:** Depression conveys a high danger of suicide. Anyone who communicates suicidal feelings ought to be considered important. The ideal approach to minimize the danger of suicide knowing the danger elements perceiving indications of suicide. Suicide is a conceivably preventable general healthcare issue. In 2014, the most recent year for which insights are accessible, suicide was the eighth driving reason for death in the U.S.

Danger elements for suicide change by age, sexual orientation, and ethnic gathering. More than 90% of individuals committing suicide have clinical depression or some other diagnosable mental issue. Commonly, individuals who bite the dust by suicide have a liquor or alcohol issue along with other mental or psychological issues.

**Symptoms for suicidal thoughts:**

Unfriendly or traumatic life occasions and other danger components, for example, clinical depression, may prompt suicide. At the same time, suicide and suicidal conduct are never ordinary reactions to push. Other danger components for suicide include:

- One or more former suicide endeavors.
- Family history of mental issue or substance misuse, suicide or savagery
- Physical or sexual misuse
- Keeping guns in the home
- Endless physical sickness, including anger issues
- Imprisonment

# Chapter 3

## Materialization and Methods

### **Subjective Assessment of data:**

#### **BDI (Beck Depression Inventory)**

The Beck Depression Inventory II (BDI- II) is a self-report instrument for the recognition of depression in adolescents and grown-ups. It quantifies the seriousness of the depression, relating to the non-physical criteria for the determination of significant depression as per DSM-5. Up to this point, the psychometric properties of the instrument have not been concentrated on in the all-inclusive community. The BDI takes more or less 10 minutes to finish, despite the fact that customers oblige a fifth or sixth-grade perusing level to sufficiently answer the questionnaire

Inward consistency for the BDI ranges from .73 to .92 with a mean of .86. (Beck, Steer, & Garbin, 1988). Comparative reliability has been found for the 13-thing short frame (Groth-Marnat, 1990). The BDI shows high inner consistency, with alpha coefficients of .86 and .81 for psychiatric and non-psychiatric populaces separately (Beck et al., 1988).

#### **MDI (Major Depression Inventory):**

A self-rating stock has been created to gauge DSM-IV and ICD-10 analyses of real (direct to extreme) depression by the patients' self-reported manifestations. This Major Depression

Inventory (MDI) can be scored both as per the DSM-IV and the ICD-10 calculations for depressive symptomatology and as indicated by seriousness scales by the basic aggregate whole of the things. Routines: The Schedule for Clinical Assessment in Neuropsychiatry (SCAN) was utilized as a list of legitimacy for the clinician's DSM-IV and ICD-10 conclusion of real (direct to extreme) depression. The affectability and specificity of MDI were surveyed in an example of 43 subjects covering a range of depressive indications. Results: The affectability of the MDI calculations for real depression differed somewhere around 0.86 and 0.92. The specificity differed somewhere around 0.82 and 0.86. At the point when utilizing the aggregate score of MDI, the ideal cut-off score was assessed 26 and the aggregate score was demonstrated to be an adequate measurement. Limits: The specimen of subjects was constrained. Patients with maniacal depression were excluded.

**The Hamilton Rating Scale for Depression (HRSD)**, additionally called the Hamilton Depression Rating Scale (HDRS), abridged HAM-D, is a different thing poll used to give a sign of depression, and as a manual for assess recovery.[2] Max Hamilton initially distributed the scale in 1960[3] and reconsidered it in 1966, 1967 and 1980. The survey is intended for grown-ups and is utilized to rate the seriousness of their depression by testing disposition, emotions of blame, suicide ideation, a sleeping disorder, tumult or hindrance, uneasiness, weight reduction, and physical manifestations.

An upper may demonstrate measurable viability notwithstanding when considerations of suicide expand however rest is enhanced, or besides, a stimulant that as asymptomatic increment sexual and gastrointestinal side effect appraisals may enlist as being less powerful in treating the depression itself than it really is.[8] Hamilton kept up that his scale ought not to be utilized as asymptomatic instrument.



The BDI-II contains 21 questions, each answer being scored on a scale value of 0 to 3. The cutoffs used differ from the original: 0-13: minimal depression; 14-19: mild depression; 20-28: moderate depression; and 29-63: severe depression. Higher total scores indicate more severe depressive symptoms.

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

- 0 I do not feel sad.
- 1 I feel sad much of the time.
- 2 I am sad all the time.
- 3 I am so sad or unhappy that I can't stand it.

2. Pessimism

- 0 I am not discouraged about my future.
- 1 I feel more discouraged about my future than I used to be.
- 2 I do not expect things to work out for me.
- 3 I feel my future is hopeless and will only get worse.

3. Past Failure

- 0 I do not feel like a failure.
- 1 I have failed more than I should have.
- 2 As I look back, I see a lot of failures.
- 3 I feel I am a total failure as a person.

4. Loss of Pleasure

- 0 I get as much pleasure as I ever did from the things I enjoy.
- 1 I don't enjoy things as much as I used to.
- 2 I get very little pleasure from the things I used to enjoy.
- 3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- 0 I don't feel particularly guilty.
- 1 I feel guilty over many things I have done or should have done.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6. Punishment Feelings

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7. Self-Dislike

- 0 I feel the same about myself as ever.
- 1 I have lost confidence in myself.
- 2 I am disappointed in myself.
- 3 I dislike myself.

8. Self-Criticalness

- 0 I don't criticize or blame myself more than usual.
- 1 I am more critical of myself than I used to be.
- 2 I criticize myself for all of my faults.
- 3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10. Crying

- 0 I don't cry anymore than I used to.
- 1 I cry more than I used to.
- 2 I cry over every little thing.
- 3 I feel like crying, but I can't.



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# Beck Depression Inventory

CRTN: \_\_\_\_\_ CRF number: \_\_\_\_\_

Baseline

Page 15 patient initials: \_\_\_\_\_

### 11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

### 12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

### 13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

### 14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

### 15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

### 16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern.
- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.
- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.
- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

### 17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

### 18. Changes in Appetite

- 0 I have not experienced any change in my appetite.
- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.
- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.
- 3a I have no appetite at all.
- 3b I crave food all the time.

### 19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

### 20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

### 21. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

Subtotal Page 2

Subtotal Page 1

Total Score

NF15645

3458789101112 ABCDE

**Figure -1 BDI-II form**

**Scoring Procedure:**

**BDI-II Scoring:**

The BDI-II was an update for BDI that came into action in 1996 and grew in light of the American Psychiatric Association's production of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, which changed a large portion of the demonstrative criteria for Major Depressive Disorder. Things including changes in self-perception, depression, and trouble in working were calculated. Same as the BDI, BDI-II additionally contains 21 inquiries, every answer being scored on a scale estimation of 0 to 3.

<b>SCORE</b>	<b>Depression level</b>
0–13	Depression- free
14–19	Dysthymia
20–28	Moderate or mild
29–63	Severe or Bipolar

**Table -1**



**MDI Scoring: Dysthymia:** A score of 4 or 5 in two of the initial three sets. In addition a score of no less than 3 on a few of the last seven sets.

**Moderate or mild depression:** A score of 4 or 5 in a few of the initial three things. In addition a score of no less than 3 on four of the last seven things.

**Major depression:** A score of 4 or 5 in the greater part of the initial three things. Also a score of no less than 3 on five or a greater amount of the last seven things.

**Bipolar Disorder:** The quantity of things is decreased to nine, as Item 4 is a piece of Item 5. Incorporate whichever of the two things has the most elevated score (thing 4 or 5). A score of nothing less than five things is needed, to be scored as takes after: the score on the initial three things must be no less than 4, and on alternate things no less than 3. Either Item 1 or 2 must have a score of 4 or 5.

Score	Depression Level
20-24	Mild
25-29	Moderate
>30	Severe

**Table-2**



## Major Depression Inventory (MDI)

The following questions ask about how you have been feeling over the past two weeks. Please put a tick in the box which is closest to how you have been feeling.

---

How much of the time ...		All the time	Most of the time	Slightly more than half the time	Slightly less than half the time	Some of the time	At no time
1	Have you felt low in spirits or sad?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Have you lost interest in your daily activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Have you felt lacking in energy and strength?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Have you felt less self-confident?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Have you had a bad conscience or feelings of guilt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>6</b>	Have you felt that life wasn't worth living?	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<b>7</b>	Have you had difficulty in concentrating, e.g. when reading the newspaper or watching television?	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<b>8a</b>	Have you felt very restless?	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value="3"/>	<input checked="" type="text" value="2"/>	<input checked="" type="text" value="1"/>	<input type="text" value="0"/>
<b>8b</b>	Have you felt subdued or slowed down?	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<b>9</b>	Have you had trouble sleeping at night?	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<b>10a</b>	Have you suffered from reduced appetite?	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<b>10b</b>	Have you suffered from increased appetite?	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="0"/>

*Total score*   





## Major Depression Inventory (MDI): Scoring Key

At the top, the diagnostic demarcation line is indicated and at the bottom, the total scores of the 10 items are summed up.

How much of the time ...		Diagnostic demarcation line						
		All the time	Most of the time	Slightly more than half the time	Slightly less than half the time	Some of the time	At no time	
1	Have you felt low in spirits or sad?	5	4	3	2	1	0	
2	Have you lost interest in your daily activities?	5	4	3	2	1	0	
3	Have you felt lacking in energy and strength?	5	4	3	2	1	0	
Highest score for DSM-IV major depression	4	Have you felt less self-confident?	5	4	3	2	1	0
	5	Have you had a bad conscience or feelings of guilt?	5	4	3	2	1	0
	6	Have you felt that life wasn't worth living?	5	4	3	2	1	0

**Figure 2 (Major Depression Inventory)**

**HRSD Scoring procedure:**

**HRSD Unfilled Form Can be observed:**

## Hamilton Depression Rating Scale (HDRS)

PLEASE COMPLETE THE SCALE BASED ON A STRUCTURED INTERVIEW

Instructions: for each item select the one "cue" which best characterizes the patient. Be sure to record the answers in the appropriate spaces (positions 0 through 4).

- |  |  |
|--|--|
| <b>1</b> <input type="checkbox"/> <b>DEPRESSED MOOD</b> ( <i>sadness, hopeless, helpless, worthless</i> )<br>0 <input type="checkbox"/> Absent.<br>1 <input type="checkbox"/> These feeling states indicated only on questioning.<br>2 <input type="checkbox"/> These feeling states spontaneously reported verbally.<br>3 <input type="checkbox"/> Communicates feeling states non-verbally, i.e. through facial expression, posture, voice and tendency to weep.<br>4 <input type="checkbox"/> Patient reports virtually only these feeling states in his/her spontaneous verbal and non-verbal communication. | <b>2</b> <b>FEELINGS OF GUILT</b><br>0 <input type="checkbox"/> Absent.<br>1 <input type="checkbox"/> Self reproach, feels he/she has let people down.<br>2 <input type="checkbox"/> Ideas of guilt or rumination over past errors or sinful deeds.<br>3 <input type="checkbox"/> Present illness is a punishment. Delusions of guilt.<br>4 <input type="checkbox"/> Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations. |
|--|--|

28

- |  |   |
|--|---|
| <b>3</b> <b>SUICIDE</b><br>0 <input type="checkbox"/> Absent.<br>1 <input type="checkbox"/> Feels life is not worth living.<br>2 <input type="checkbox"/> Wishes he/she were dead or any thoughts of possible death to self.<br>3 <input type="checkbox"/> Ideas or gestures of suicide.<br>4 <input type="checkbox"/> Attempts at suicide (any serious attempt rate 4). | <b>11</b> <b>ANXIETY SOMATIC</b> (physiological concomitants of anxiety) such as:<br><u>gastro-intestinal</u> – dry mouth, wind, indigestion, diarrhea, cramps, belching<br><u>cardio-vascular</u> – palpitations, headaches<br><u>respiratory</u> – hyperventilation, sighing<br><u>urinary frequency</u><br><u>sweating</u><br>0 <input type="checkbox"/> Absent.<br>1 <input type="checkbox"/> Mild.<br>2 <input type="checkbox"/> Moderate.<br>3 <input type="checkbox"/> Severe.<br>4 <input type="checkbox"/> Incapacitating. |
| <b>4</b> <b>INSOMNIA: EARLY IN THE NIGHT</b><br>0 <input type="checkbox"/> No difficulty falling asleep.<br>1 <input type="checkbox"/> Complains of occasional difficulty falling asleep, i.e. more than $\frac{1}{2}$ hour.<br>2 <input type="checkbox"/> Complains of nightly difficulty falling asleep.   | <b>12</b> <b>SOMATIC SYMPTOMS GASTRO-INTESTINAL</b><br>0 <input type="checkbox"/> None.<br>1 <input type="checkbox"/> Loss of appetite but eating without staff encouragement. Heavy feelings in abdomen.<br>2 <input type="checkbox"/> Difficulty eating without staff urging. Requests or requires laxatives or medication for bowels or medication for gastro-intestinal symptoms.   |
| <b>5</b> <b>INSOMNIA: MIDDLE OF THE NIGHT</b><br>0 <input type="checkbox"/> No difficulty.<br>1 <input type="checkbox"/> Patient complains of being restless and disturbed during the night.<br>2 <input type="checkbox"/> Waking during the night – any getting out of bed rates 2 (except for purposes of voiding).  |   |

**6 INSOMNIA: EARLY HOURS OF THE MORNING**

- 0  No difficulty.
- 1  Waking in early hours of the morning but goes back to sleep.
- 2  Unable to fall asleep again if he/she gets out of bed.



**7 WORK AND ACTIVITIES**

- 0  No difficulty.
- 1  Thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies.
- 2  Loss of interest in activity, hobbies or work – either directly reported by the patient or indirect in listlessness, indecision and vacillation (feels he/she has to push self to work or activities).
- 3  Decrease in actual time spent in activities or decrease in productivity. Rate 3 if the patient does not spend at least three hours a day in activities (job or hobbies) excluding routine chores.
- 4  Stopped working because of present illness. Rate 4 if patient engages in no activities except routine chores, or if patient fails to perform routine chores unassisted.

**8 RETARDATION (slowness of thought and speech, impaired ability to concentrate, decreased motor activity)**

- 0  Normal speech and thought.
- 1  Slight retardation during the interview.
- 2  Obvious retardation during the interview.
- 3  Interview difficult.
- 4  Complete stupor.

**9 AGITATION**

- 0  None.
- 1  Fidgetiness.
- 2  Playing with hands, hair, etc.
- 3  Moving about, can't sit still.
- 4  Hand wringing, nail biting, hair-pulling, biting of lips.

**10 ANXIETY PSYCHIC**

- 0  No difficulty.
- 1  Subjective tension and irritability.
- 2  Worrying about minor matters.
- 3  Apprehensive attitude apparent in face or speech.
- 4  Fears expressed without questioning.

**13 GENERAL SOMATIC SYMPTOMS**

- 0  None.
- 1  Heaviness in limbs, back or head. Backaches, headaches, muscle aches. Loss of energy and fatigability.
- 2  Any clear-cut symptom rates 2.

**14 GENITAL SYMPTOMS (symptoms such as loss of libido, menstrual disturbances)**

- 0  Absent.
- 1  Mild.
- 2  Severe.

**15 HYPOCHONDRIASIS**

- 0  Not present.
- 1  Self-absorption (bodily).
- 2  Preoccupation with health.
- 3  Frequent complaints, requests for help, etc.
- 4  Hypochondriacal delusions.

**16 LOSS OF WEIGHT (RATE EITHER a OR b)**

- |  |   |
|--|---|
| <p><b>a) According to the patient:</b></p> <ul style="list-style-type: none"> <li>0 <input type="checkbox"/> No weight loss.</li> <li>1 <input type="checkbox"/> Probable weight loss associated with present illness.</li> <li>2 <input type="checkbox"/> Definite (according to patient) weight loss.</li> <li>3 <input type="checkbox"/> Not assessed.</li> </ul> | <p><b>b) According to weekly measurements:</b></p> <ul style="list-style-type: none"> <li>0 <input type="checkbox"/> Less than 1 lb weight loss in week.</li> <li>1 <input type="checkbox"/> Greater than 1 lb weight loss in week.</li> <li>2 <input type="checkbox"/> Greater than 2 lb weight loss in week.</li> <li>3 <input type="checkbox"/> Not assessed.</li> </ul> |
|--|---|

**17 INSIGHT**

- 0  Acknowledges being depressed and ill.
- 1  Acknowledges illness but attributes cause to bad food, climate, overwork, virus, need for rest, etc.
- 2  Denies being ill at all.

Total score:

This scale is in the public domain.

**Figure 3 (HRSD)**

A score of 0-7 is thought to be typical. Scores of 20 or higher demonstrate moderate, extreme, or exceptionally serious depression and are normally needed for section into a clinical trial. Questions 18-20 may be recorded to give additional data about the depression.

### Observations:

B-Tech Final	Serial No	BDI-II Score	MDI Score	HRSD Score	Remarks
	1	11	22	02	No Depression
	2	08	20	02	No Depression
	3	08	21	01	No Depression
	4	10	20	02	No Depression
	5	15	27	08	Mild Depression
	6	07	20	06	No Depression
	7	00	20	03	No Depression
	8	01	21	03	No Depression
	9	12	20	02	No Depression
	10	3	20	03	No Depression
	11	07	22	01	No Depression
	12	06	22	03	No Depression
	13	05	23	02	No Depression
	14	05	23	01	No Depression
	15	05	22	04	No Depression
	16	05	20	03	No Depression
	17	07	21	02	No Depression
	18	09	21	01	No Depression
	19	10	20	06	No Depression
	20	10	20	03	No Depression
	21	10	21	01	No Depression
	22	10	20	05	No Depression



	23	08	21	03	No Depression
	24	08	21	03	No Depression
	25	08	21	02	No Depression
	26	08	20	01	No Depression
	27	08	20	03	No Depression
	28	12	22	02	No Depression
	29	07	22	00	No Depression
	30	11	22	04	Mild Depression
	31	09	21	03	No Depression
	32	10	25	01	No Depression
	33	14	28	01	Mild Depression
	34	20	21	01	No Depression
	35	12	20	02	No Depression
	36	09	21	02	No Depression
	37	06	21	00	No Depression
	38	07	22	01	No Depression
	39	09	20	05	No Depression
	40	09	21	06	No Depression
	41	12	21	04	No Depression
	42	09	20	05	No Depression
	43	09	20	03	No Depression
<b>M-Tech</b>					
	44	11	21	02	No Depression
	45	10	22	.01	No Depression

	46	09	22	03	No Depression
	47	12	23	03	No Depression
	48	15	23	01	Mild Depression
	49	08	23	02	No Depression
	50	16	22	03	No Depression
	51	13	26	02	No Depression
	52	12	27	02	No Depression
	53	09	22	02	No Depression
	54	05	20	05	No Depression
	55	11	20	04	No Depression
	56	10	21	01	No Depression
	57	03	20	01	No Depression
	58	00	21	02	No Depression
	59	05	20	03	No Depression
	60	02	20	03	No Depression
	61	04	20	03	No Depression
	62	06	21	03	No Depression
	63	02	21	02	No Depression
	64	00	22	01	No Depression
	65	18	29	10	Mild Depression
	66	08	21	04	No Depression
	67	06	22	03	No Depression
	68	14	28	08	Mild Depression
	69	13	21	02	No Depression

	70	10	20	01	No Depression
	71	09	21	01	No Depression
	72	07	22	01	No Depression
	73	08	22	00	No Depression
	74	09	23	02	No Depression
	75	09	21	03	No Depression
	76	06	22	03	No Depression
	77	04	21	01	No Depression
	78	0	22	02	No Depression
	79	11	23	01	Mild Depression
	80	19	28	08	Mild Depression
	81	12	20	01	No Depression
	82	08	21	02	No Depression
	83	07	22	03	No Depression
<b>Ph.D. Set</b>	84	14	27	08	Mild Depression
	85	14	28	09	Mild Depression
	86	09	20	01	No Depression
	87	06	20	021	No Depression
	88	02	21	02	No Depression
	89	10	22	02	No Depression
	90	12	21	03	No Depression
	91	06	21	00	No Depression
	92	07	21	00	No Depression
	93	09	21	01	No Depression

	94	10	21	02	No Depression
	95	11	22	02	No Depression
	96	11	20	01	No Depression
	97	11	21	02	No Depression
	98	09	20	02	No Depression
	99	08	20	03	No Depression
	100	09	21	02	No Depression

**Table -3**

# Chapter 4

## Calculation and Results:

### **BDI Score Analysis**

Mean BDI-II Score = Total BDI Score/100 = 862

Mean BDI-II Score (for B-Tech) = BDI-II score for B-tech/43= 7.35

Mean BDI-II Score (for M-Tech) = BDI-II score for M-tech/45 = 8.662

Mean BDI-II Score (for Ph.D.) = BDI-II score for Ph.D./17=9.30

### **MDI Score Analysis**

Mean MDI Score = Total MDI Score/100= 22.30

Mean MDI Score (for B-Tech) = Total MDI Score for B-Tech/43 = 20.97

Mean MDI Score (for M-Tech) = Total MDI Score for M-Tech/45= 21.66

Mean MDI Score (for Ph.D.) = Total MDI Score for Ph.D./17= 20.764

### **HRSD Score Analysis:**

Mean HRSD Score = Total HRSD Score/100= 2.58

Mean HRSD Score (for B-Tech) = Total HRSD Score for B-Tech/43=2.02

Mean HRSD Score (for M-Tech) = Total HRSD Score for M-Tech/45= 2.9

Mean HRSD Score (for Ph.D.) = Total HRSD Score for Ph.D./17= 2.47

## Chapter 5

### Conclusion:

We thus concluded that 3 out of 40 students, 3 out of 45 M-Tech students and 2 Ph.D. students were affected with depression and with certain treatments with therapies can help these students for early treatment. Depression in youth has deep rooted passionate and physical results, the most genuine of which are suicide and crime. There are additionally genuine money related results connected with unrecognized depression. These outcomes have a real effect on our childhood, families, schools, adolescent equity framework, work environment and groups. People who live, work or interface with youth assumes an essential part in the early acknowledgment and referral of youth who may be clinically discouraged. Until those of us who live with, work with or treat youth expand our capacity to search and request signs and side effects of depression, depression in youth will keep on being undiscovered and untreated. Youth who stay discouraged will keep on doing ineffectively and will have a negative effect on other youth, their families, the educational system, their work environment and the group in general. Some of these youngsters will bite the dust by suicide while encountering depression. Treatment needs to be customized to the young and his or her family and tended to from natural, mental and social viewpoints. With the right treatment, youth who have encountered depression will demonstrate critical change and our childhood, families, schools, groups and state will advantage.

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