



**Daffodil**  
*International*  
**University**

**Project on**

**A Survey on Rational Use of Antidepressant Drugs in Different  
Hospitals in Jashore, Bangladesh**

[In the partial fulfillment of the requirements for the degree of Bachelor of  
Pharmacy]

Submitted To

The Department of Pharmacy,  
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# APPROVAL

This project paper, “**A Survey on Rational Use of Antidepressant Drugs in Different Hospitals in Jashore, Bangladesh**”, submitted to the Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to its style and contents.

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## DECLARATION

I hereby declare that this project report, “A Survey on Rational Use of Antidepressant Drugs in Different Hospitals in Jashore, Bangladesh”, is done by me under the supervision Md. A.K. Azad Assistant Professor, I am declaring that this Project is my original work. I also declare that neither this project nor any part thereof has been submitted elsewhere for the award of Bachelor or any degree.

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# **Dedication.....**

**My Parents**

**The persons who always encourage me in every sphere  
of my life**

## **Abstract**

Depression is a mood illness that can interfere with daily life and is characterized by lingering sense of sadness and loss of interest. The only severe and persistent cases of depression that should receive antidepressant treatment, along with the shortest possible length of treatment, and a reduction in the use of these medications for anxiety disorders, constitute a sensible use of antidepressants that takes into account all potential benefits and hazards. The purpose of this survey is to find out the etiology of depression and also to identify their treatment. A survey created using questionnaires' was being circulated face-to-face individually at the Jashore area. According to the survey, 25% of respondents came to the hospital suffering from hypertension, 18% suffering from diabetes, and 28% people came suffering from depression. 54 percent of respondents replied that they have been worried about something. Permitting this survey, most of the people (67%) replied that they didn't get enough sleep. According to the survey, 36% of respondents replied that they have felt hopeless; 33% have felt helpless. Feeling hopeless or helpless is the primary symptom of depression. 28% of respondents replied that they have taken alcohol or drugs. Most of the responders (91%) have responded that they have taken antidepressants without doctor suggestions. Everyone should take drugs on their prescriber's advice, except OTC drugs. According to the survey, 34% of respondents replied that their doctor gave them imipramine for management of depression. 23%, 20%, 12%, and 11% also replied that doctors have been given respectively as Citalopram, Fluoxetine, Escitalopram, and Sertraline. According to the survey, 31% of participants replied that they felt sick after taking antidepressant. Also, 24%, 21%, and 24% of participants replied that they have been felt headaches, dizziness, and falling very sleepy. In this survey, we can say that most of the people have been taken antidepressants irrationally, and they have also been taken antidepressant without the prescriber's advice.

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# **Chapter 1**

## Introduction

## **1.1 Introduction**

The proportion between possible positive effects and negative side effects as they relate to the specific patient is key to rational drug use. The numerous information resources that must be combined present a challenge in reaching such a balance. Guidelines frequently emphasize randomized controlled trials that are specifically designed to discover benefits through systematic reviews and meta-analyses [1]. Despite proof to the contrary, studies based on observation are frequently thought to be of lower relevance [2]. Unless these consequences manifest early in the course of therapy and are particularly examined, the assessment of adverse effects depends mainly on observational studies and data from routine clinical practice. The disparity among various sources of knowledge is best illustrated by the use of antidepressant medications (AD). The American Psychiatric Association's recommendations [4] may ignore adverse events that fall under the category of acceptance [3] and that will be closely examined. Clinical judgments involving the dissemination of information to a specific patient must be considered in the context of risk (the propensity for unfavorable outcomes of an index illness if the therapy is withheld), adaptability to the implementation. option, and vulnerability to unfavorable treatment effects. We'll talk about how this framework might influence how prescriptions are written for people with mood and anxiety problems. [5].

## **1.2 Multifaceted nature of depression**

The biological and psychosocial aspects of depression interact. Depression has been determined to be 31% to 42% heritable, and there is proof of physiological mechanisms and susceptibility. Addictions, suicidality, anxiety, stress, trauma, specific adverse early life experiences (such as abuse/neglect/parental depression), character, chronic pain and/or illness, some illnesses and hormone modifications, and some treatments have all been linked to depression. [6] Every instance of depression is influenced by a variety of possible routes, each to a different extent. When conducting assessments, counselors must keep possible contributors in mind. If a client's depression is primarily related to a medical problem, a counselor may recommend that the client see their doctor for a medical evaluation. The counselor and client may work together to decide what therapy needs to take precedence when depressive symptoms are present along with other life stressors or issues (such as addiction). Often, solving one problem has a positive ripple impact on other

problems. [7] For example, addressing drug abuse may lessen depression, and the opposite is also true. The counselor's collaboration with the client to create a therapeutic focus, track the results of therapy, and make necessary adjustments are key. If resources are accessible, another option is to handle multiple issues concurrently, either as the sole intervention facilitator or as a member of a mitigation team. In Western mental health systems, depression is primarily recognized as a main mental disorder that requires medical treatment. [8]

### **1.3 Biochemical basis of depression**

We have intriguing new understandings of the nature of mental processes thanks to the enormous advancements made in the area of neuroscience during the 20th century. Neuroscience, which began with neuroanatomy and electrophysiology at the turn of the 20th century, has evolved into an interdisciplinary field encompassing a wide range of biological examinations, from brain imaging to molecular analyses of cell and gene function. This has increased our understanding of the cellular and molecular mechanisms that control behavior.<sup>28</sup> Numerous Nobel Prize winners, including Julius Axelrod, have made significant contributions to our comprehending of how the brain works. As a result, examinations into psychiatric disorders are now wholly grounded in basic neuroscience. For a while, and particularly in the field of psychiatry, little existed about the biological substrates of the illnesses. [9]

### **Synaptic transmission**

The groundbreaking work of Otto Loewi and other scientists, which established that chemical communication is the primary method by which nerves interact with each other, was one of the biggest and most significant advancements in neuroscience. Pre- and postsynaptic incidents, which are highly regulated and serve as the foundation for plasticity and learning in the central nervous system, are well understood today. (CNS). A number of processes are necessary for chemical delivery, such as the synthesis of the neurotransmitters, their storage in secretory vesicles, and their controlled release into the synaptic cleft among pre- and postsynaptic neurones. [10] Additionally, the effect of the neurotransmitters must be stopped, and the final cellular responses must be induced via

various steps in the signal transduction cascade. A typical neurotransmitter synapse is schematically shown in Figure 1. [11]

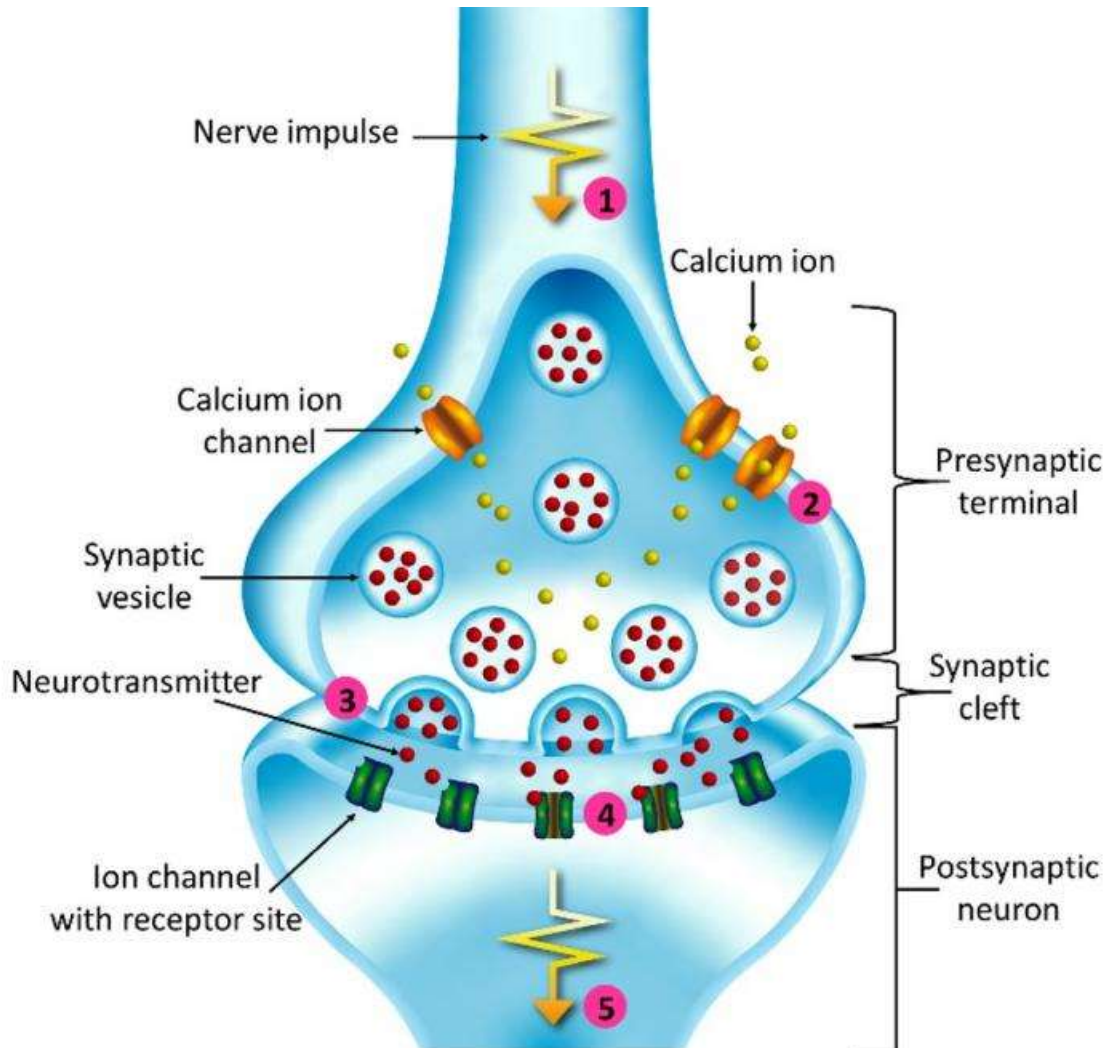


Figure 1: Synaptic transmission

(G-proteins). Since they influence an array of signaling mechanisms inside the cells, such as adenylylcyclases, phospholipases, and the phosphoinositide-mediated system, these G-proteins represent important beginning regulatory components in transmembrane transmission. [13] Early cellular events in the signal transduction waterfall, such as a spike in intracellular calcium concentrations of ions or second messengers like cyclic adenosine monophosphate (cAMP), trigger a pathway through phosphorylation of protein kinases, which in turn regulates numerous biological responses and manages both short- and long-

term neurological processes by controlling neuronal ion channels, receptor modulation, and neurotransmitter release. [14]

Name of drug	Mechanism of action	Example
<b>Selective serotonin reuptake inhibitors (SSRIs).</b>	SSRIs exert action by inhibiting the reuptake of serotonin, thereby increasing serotonin activity. Unlike other classes of antidepressants, SSRIs have little effect on other neurotransmitters, such as dopamine or norepinephrine.	Fluoxetine, paroxetine, citalopram, escitalopram.
<b>Serotonin and norepinephrine reuptake inhibitors (SNRIs).</b>	Serotonin-norepinephrine reuptake inhibitors (SNRIs) inhibit the presynaptic neuronal uptake of serotonin and norepinephrine and prolong the effects of the monoamines in the synaptic cleft within the central nervous system.	Desvenlafaxine, levomilnacipran
<b>Atypical antidepressants.</b>	Atypical antidepressants work by ultimately effecting changes in brain chemistry and communication in brain nerve cell circuitry known to regulate mood, to help relieve depression.	Vortioxetine, mirtazapine
<b>Tricyclic antidepressants.</b>	They block the reuptake of serotonin and norepinephrine in presynaptic terminals, which leads to increased concentration of these neurotransmitters in the synaptic cleft.	imipramine, nortriptyline, amitriptyline, desipramine
<b>Monoamine oxidase inhibitors (MAOIs).</b>	An enzyme called monoamine oxidase is involved in removing the neurotransmitters norepinephrine, serotonin and dopamine from the brain. MAOIs prevent this from happening, which makes more of these brain chemicals available to effect changes in both cells and circuits that have been impacted by depression.	Tranlycypromine, phenelzine and isocarboxazid

Table 1: Classification of antidepressant drug [15]

#### **1.4 The cognitive neuropsychological hypothesis of antidepressant action**

The cognitive neuropsychological hypothesis of antidepressant activity was created in an effort to comprehend the perplexing thing of the delay in the emergence of the clear clinical effect of antidepressant drugs (ADs), which is a characteristic of the majority of antidepressants right now in use. This is counterintuitive because, despite the fact that molecular, cellular, and chemical effects of a medication manifest within hours of management, symptomatic improvement is uncommon prior to one week and lasting effects are frequently not noticeable for four to six weeks after delivery. [16] The CNP theory has made an effort to clarify the mechanisms required for this symptomatic change. The CNP hypothesis, which accepted the idea that biological and psychological phenomena are inextricably linked, suggested a novel theory in which the clinical reaction can be explained by the effect of the the original biological effects of ADs on the incorporation of emotionally salient knowledge. According to the hypothesis, correcting negative bias happens very early on in the course of therapy and is essential for clinical response. Yet in order for this new bias to have a clinical impact, it must be "enacted" through social interactions, which results in the formation of new favorable correlations. This procedure requires patience and expertise, which explains why symptoms relief takes longer than expected. Fig. 2 depicts the CNP model graphically. [17]

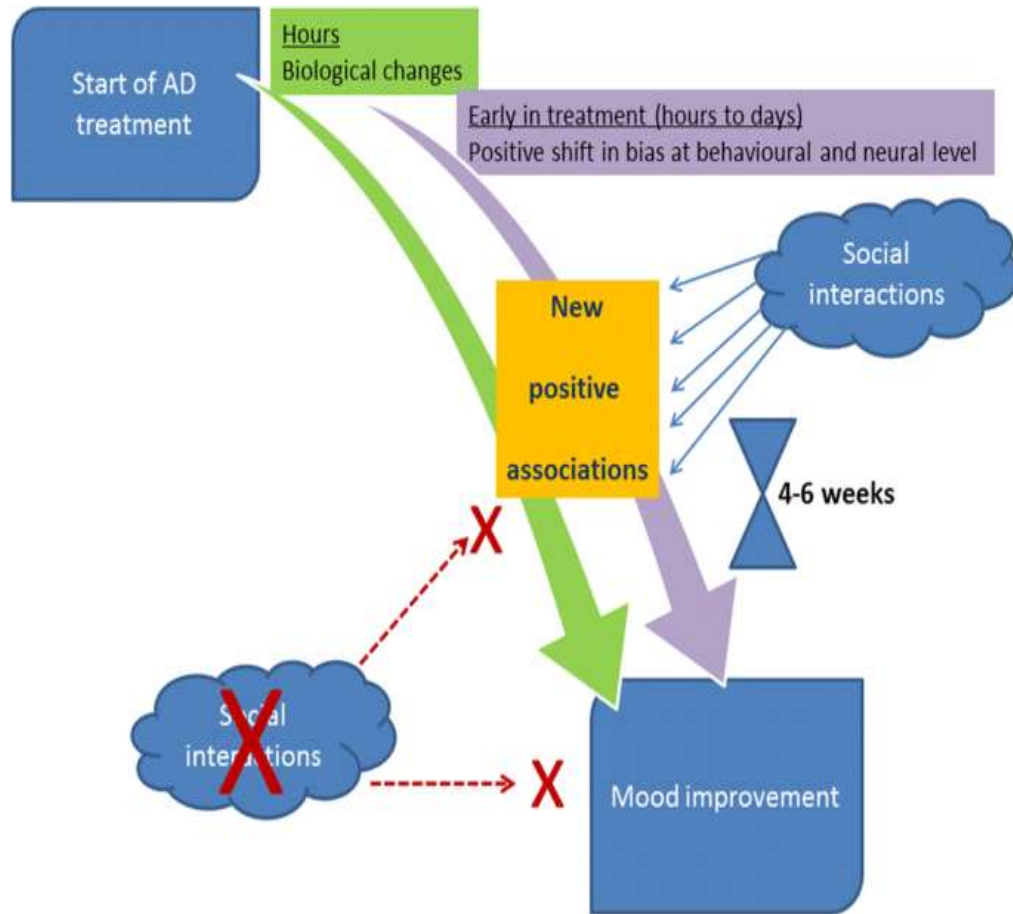


Figure 2: Schematic presentation of the cognitive neuropsychological model of antidepressant action. [18]

### 1.5 Pathophysiology of depression

There are no practical imaging anomalies or indicators to identify the pathophysiology of melancholy over the course of a lifetime. There are no constant structural or neurochemical abnormalities in the brain as determined by the post-mortem investigation. The vast majority of the medicines that are presently on the market were found empirically. The "amine hypothesis" is the foundation of most contemporary theories. The main theory behind mood disorders is that changes in biogenic amine levels are responsible. [19] According to this, mania is brought on by a functional oversupply of catecholamines at the brain's key synapses, while depression is brought on by a practical shortage of catecholamines, especially norepinephrine (NE). Depression has been linked to changes in the brain's biogenic amine levels, including those of NE, dopamine (DA), epinephrine, indolamine, serotonin, 5-hydroxytryptamine (5-HT), and two catecholamines. [20]



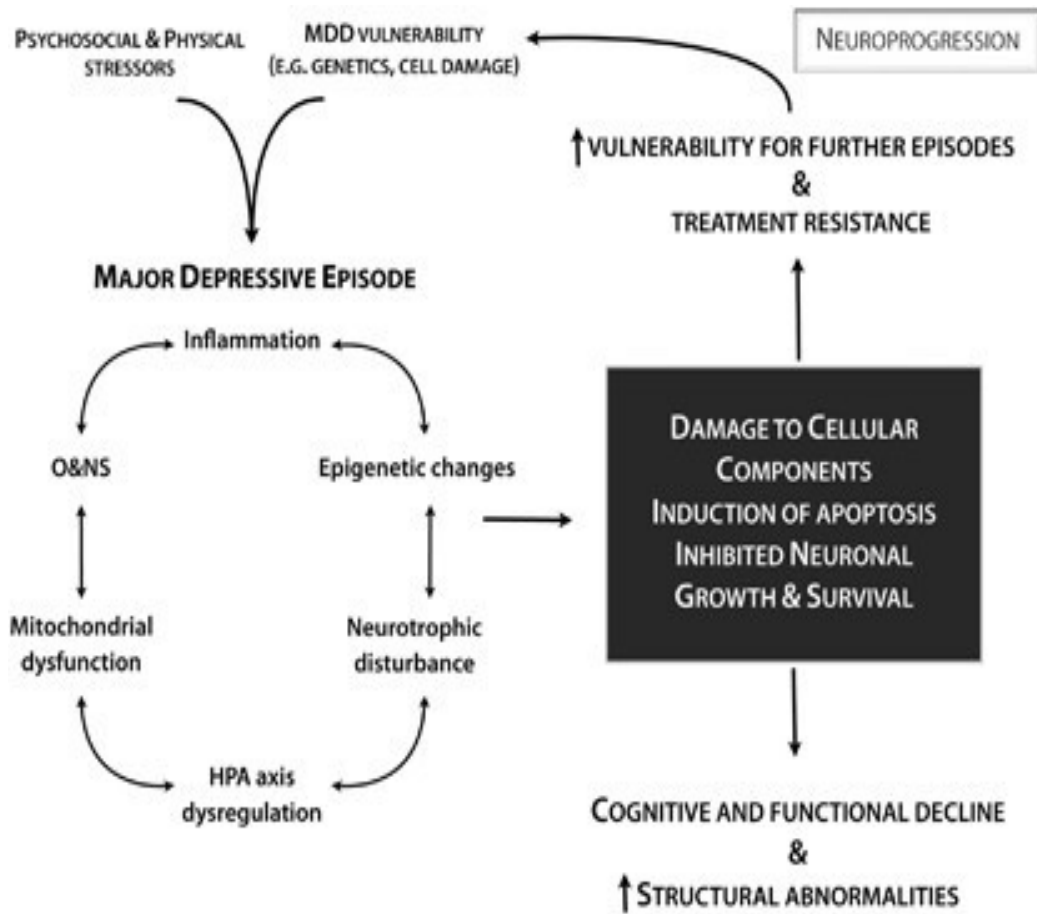


Figure 3: Pathophysiology of depression [21]

# **Chapter 2**

## **Purpose of the study**

## **2.1 Purpose of the study**

A prolonged sense of sadness and loss of interest are symptoms of depression, a mood illness. Clinical depression, also known as major depressive disorder, impacts how you feel, think, and conduct and can cause a number of emotional and physical issues. The purpose of this survey mentioned following points:

- To know consciousness of general people about antidepressant medication.
- To know the best possible treatment for depression.

# **Chapter 3**

## Literature Review

### **3.1 Inflammation: a mechanism of depression**

Major depression has increased in frequency over the past few decades, and studies suggest that immune system stimulation and cytokine production may be contributing factors. The main emphasis of the article is on how inflammation affects depression. We briefly address the cytokine sources in the brain before going through the inflammatory biomarkers of depressed. Finally, we detail the neuroimmunological mechanisms behind the link among inflammation and depression [22].

### **3.2 Antidepressant drug selection: Criteria and options.**

It is suggested that the challenge in deliberately designing novel drugs versus finding them by chance is to strike the best possible equilibrium between the number of pathways of action required for the broadest spectrum of antidepressant (ADP) effectiveness and optimizing the degree of safety and tolerability. The pharmacological indices of more recent ADPs, such as serotonin selectivity reuptake inhibitors, are broader than those of tricyclic ADPs. The key advantages of the more recent focused ADPs are a decrease in the possibility of pharmacodynamic combinations and a decrease in the sorts of side effects. The actions of P450 enzymes, dose-response curves for antidepressant efficacy and side effects, and dosing regimens vary across the newer ADPs [23].

### **3.3 The Efficacy of Antidepressant Drugs a Review of Research**

The effectiveness of antidepressant drugs has been the subject of considerable documented study reviews. We incorporate 146 double-blind studies on drugs being promoted as antidepressants in the United States around 1972 to address the inconsistencies of earlier assessments. Lithium carbonate double-blind studies and five more medications that were not being actively marketed as antidepressants in the United States at the time were also included. In 61 of 93 group comparisons, the results revealed tricyclic antidepressants to be considerably more efficacious than a placebo. A placebo was not found to be more effective than a tricyclic in any trial. In 8 out of 13 assessments, the two monoamine oxidase inhibitors that were being extensively promoted as antidepressants in the United States outperformed a placebo. Based on eight double-blind studies, lithium carbonate was not definitively demonstrated to be an effective antidepressant [24].

# **Chapter 4**

## Methodology

#### **4.1 Methodology**

A big or small proportion of project participants, consumers, and/or stakeholders may be surveyed to collect a wealth of quantitative and qualitative data.

- I have started work for this survey in January 2023
- A survey created using a questionnaires' was being circulated on face to face individually at the **Jashore area**.
- Some important data has been collected by reviewed number of related article paper from different website like google scholar, research gate and PubMed.

#### **4.2 Sample size**

- The test had 12 short-answer questions and took roughly four to five minutes to finish. The survey includes the following information: (1) prologue; (2) sociosegment statistics (age, gender, instructional level, and occupation status); and (3) Depression causes and impact.
- I have tried my best to collect all data from different profession people for gathering different types of information.
- The examination is led by a questionnaires oriented survey. 200 populations were being responded for this assessments.

#### **4.3 Data analysis strategy**

Data analysis is the methodical application of statistical and/or logical tools for describing and illustrating, condensing and summarizing, and evaluating data. Microsoft Excel was used to analyses the data.

# **Chapter 5**

## **Result & Discussion**



## 5.1 Age of responders

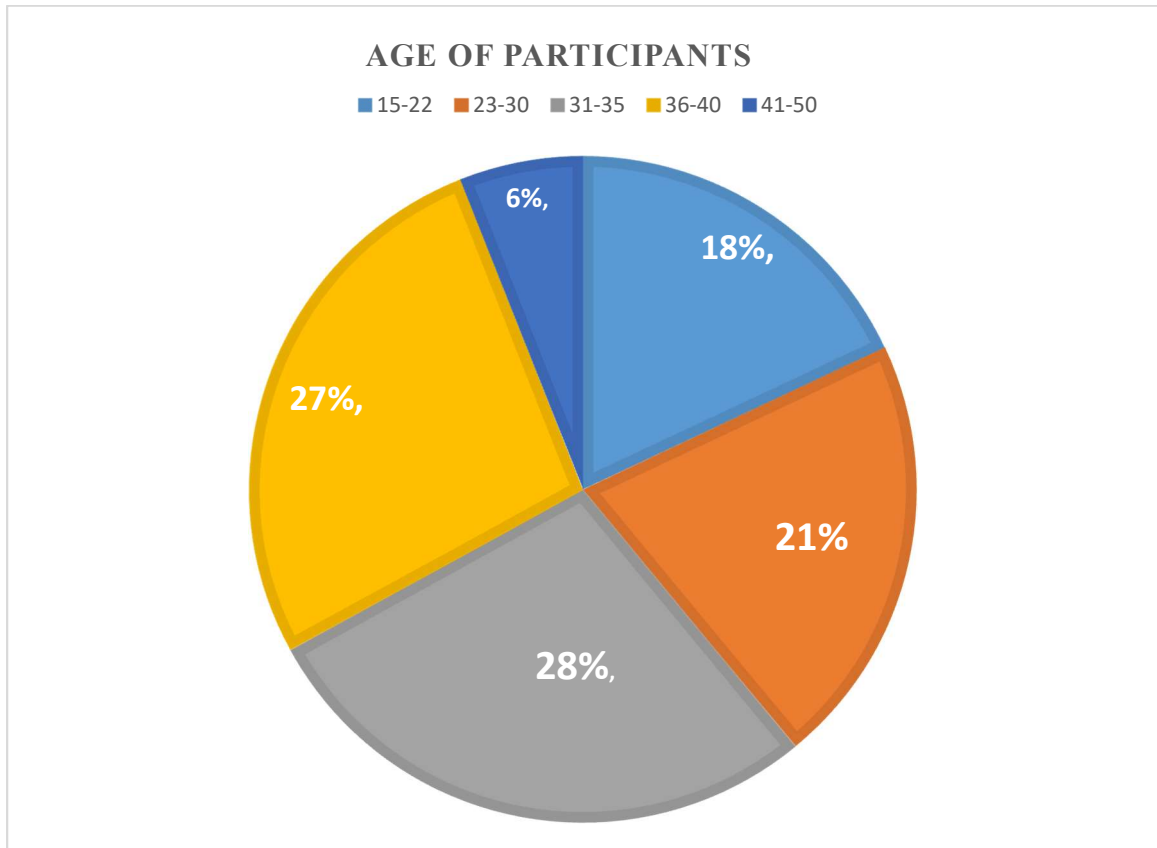


Figure 4: Age of responders

**Discussion:** Many different age groups of people have answered in this survey evaluation. The highest percentage of 28% of the participants were among the ages of 31 and 35, and 27% of respondents were in the 36–40 age groups. Of the participants, 18% were among the ages of 15 and 22.

## 5.2 Gender of participants

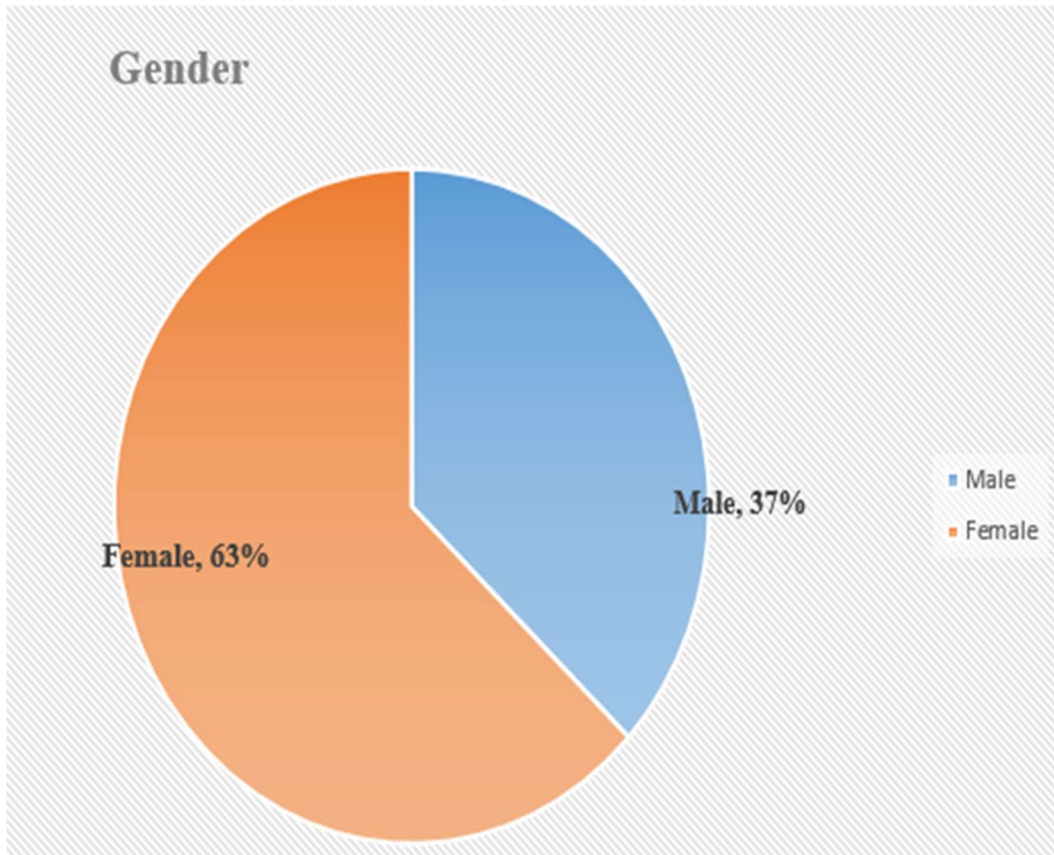


Figure 5: Gender of participants

**Discussion:** An summary of the respondents' demographics is shown in figure 4. Assembly up the majority 63% of responders are female, with 37% being male.

### 5.3 Professional status of responders

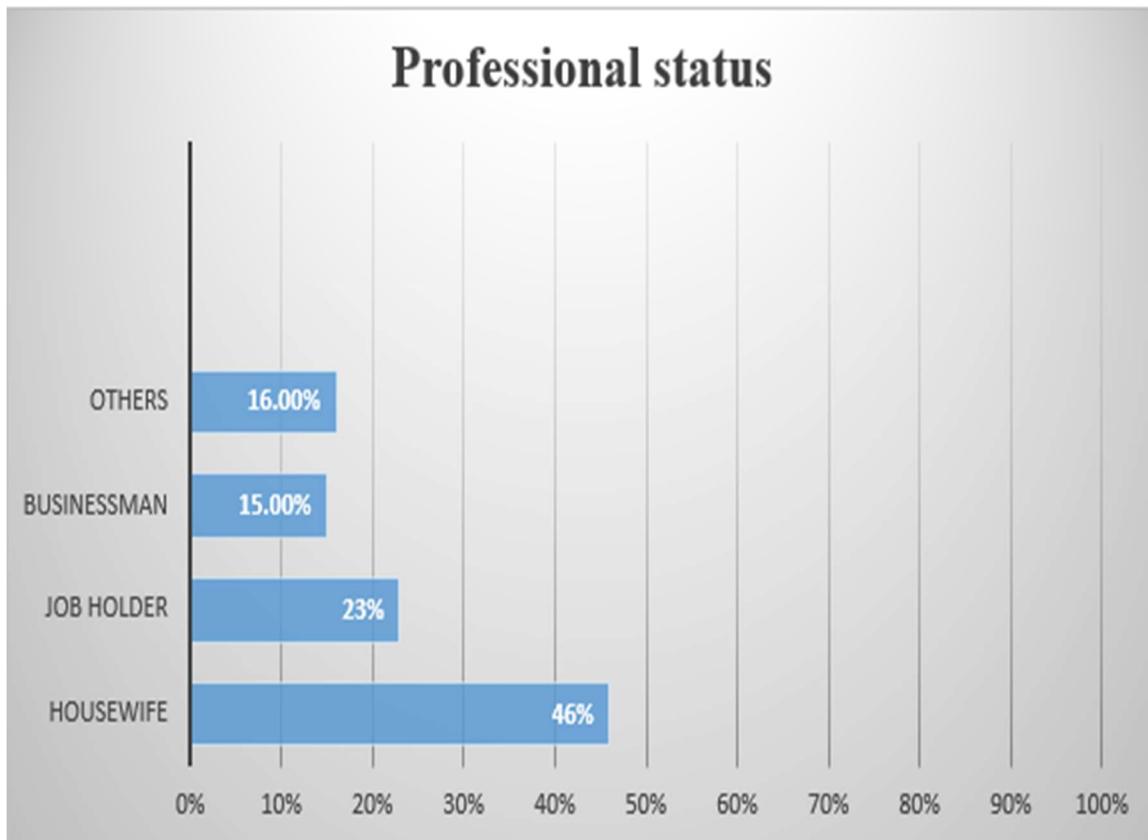


Figure 6: Professional status

**Discussion:** In this point has been revealed most of the contributors were housewife (46%). Some responders were businessman & job holder correspondingly 15%, 23% contributors.

#### 5.4 Why did you come to the hospital?

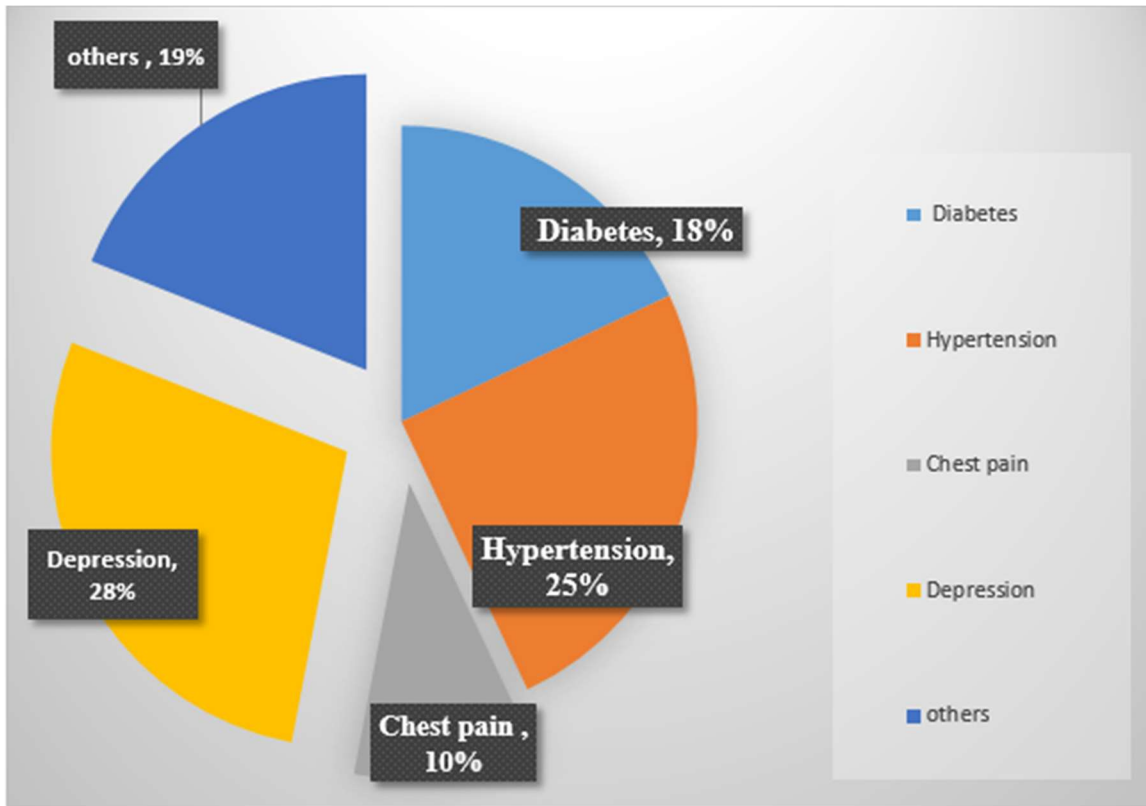


Figure 7: Reason for coming hospital

**Interpretation:** According to the survey, 25% responders came to the hospital suffering from hypertension, 18% suffering from diabetes & 28% people came suffering from depression.

### 5.5 Are you worried about anything?

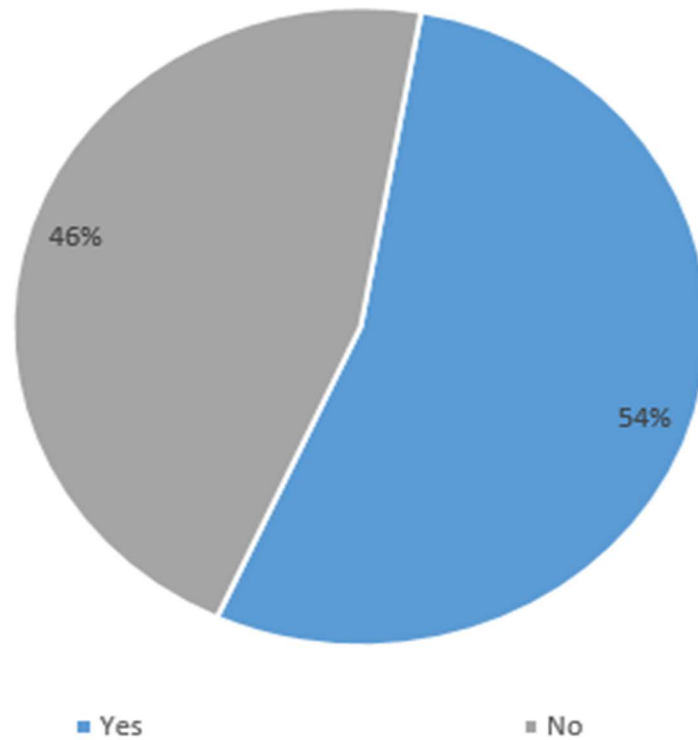


Figure 8: Worried about anything

**Interpretation:** Major depressive disorder, sometimes known as depression, is a serious medical condition that frequently affects people's feelings, thoughts, and behaviors. According to the investigation, 54% responders replied that they have been worried about something.

## 5.6 Do you get enough sleep?

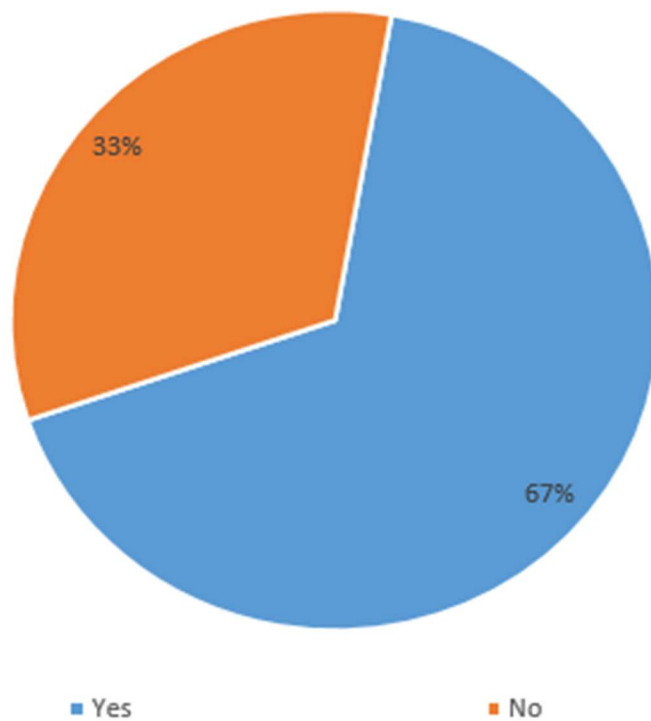


Figure 9: Sleeping pattern

**Interpretation:** Sleep quality and mental health are closely related. Sleep quality can be impacted by having a mental health condition, and poor sleep can have a detrimental effect on your mental health. Worrying results from poor sleep. Poor sleep results from worrying. Permitting this survey, most of the people **67%** replied that they didn't get enough sleep.

### 5.7 Do you feel like hopeless or helpless?

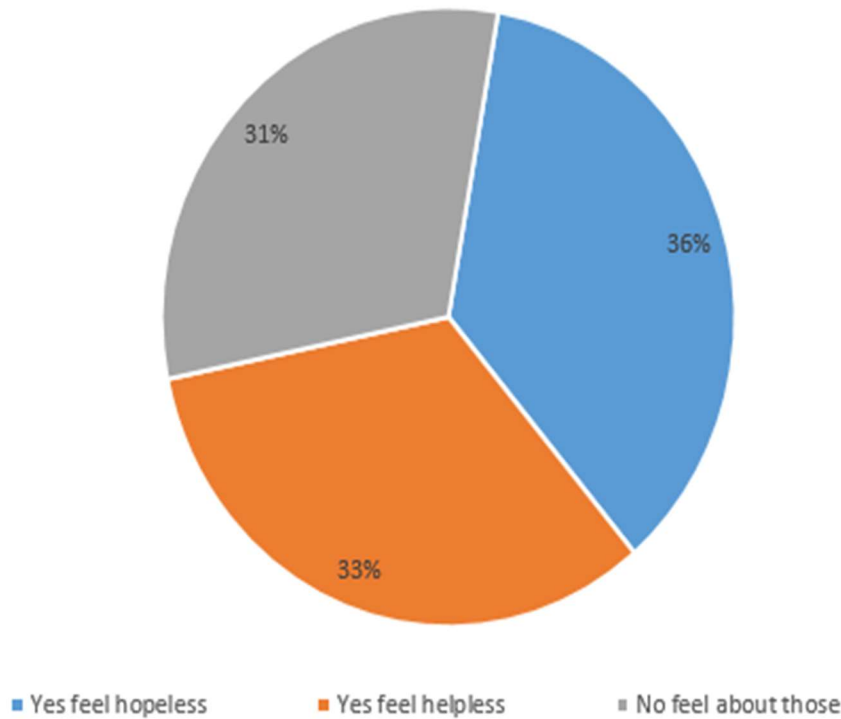


Figure 10: feel like hopeless or helpless

**Interpretation:** According to the survey, 36% responders replied that they have been felt hopeless, 33% have been felt helpless. Feeling hopeless/helpless is the primary symptoms of depression.

### 5.8 Do you take alcohol or drugs?

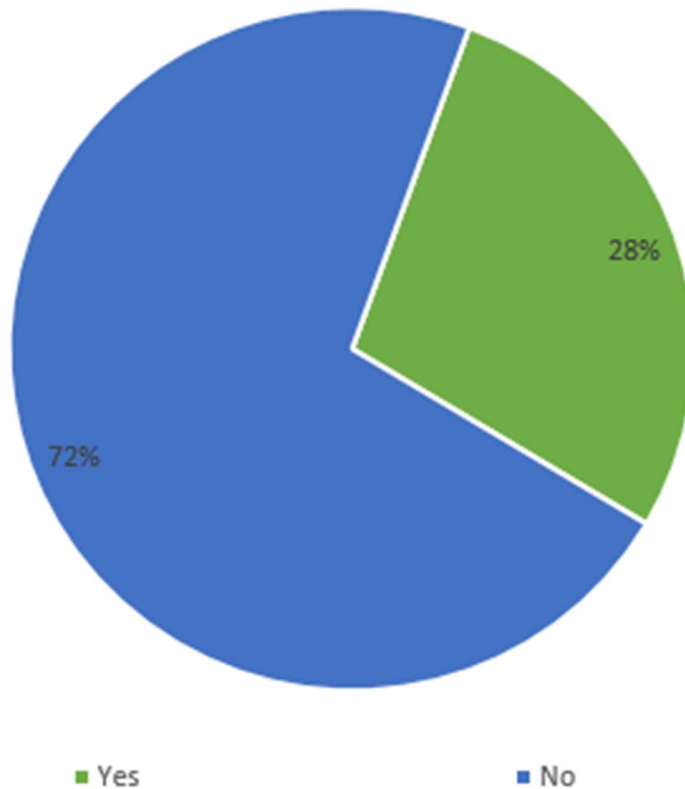


Figure 11: Take alcohol or drugs

**Interpretation:** Anxiety and despair can also get worse when using alcohol and other medications. Anxiety levels are frequently raised by chronic alcohol use issues and severe alcohol withdrawal. Long-term use or withdrawal from various substances, such as stimulant medications, club drugs, cannabis, opioids, and alcohol, is also linked to depression and anxiety. According to this investigation, **28%** responders replied that they have been taken alcohol/drugs.



### 5.9 Have you taken antidepressant without doctors' advice?

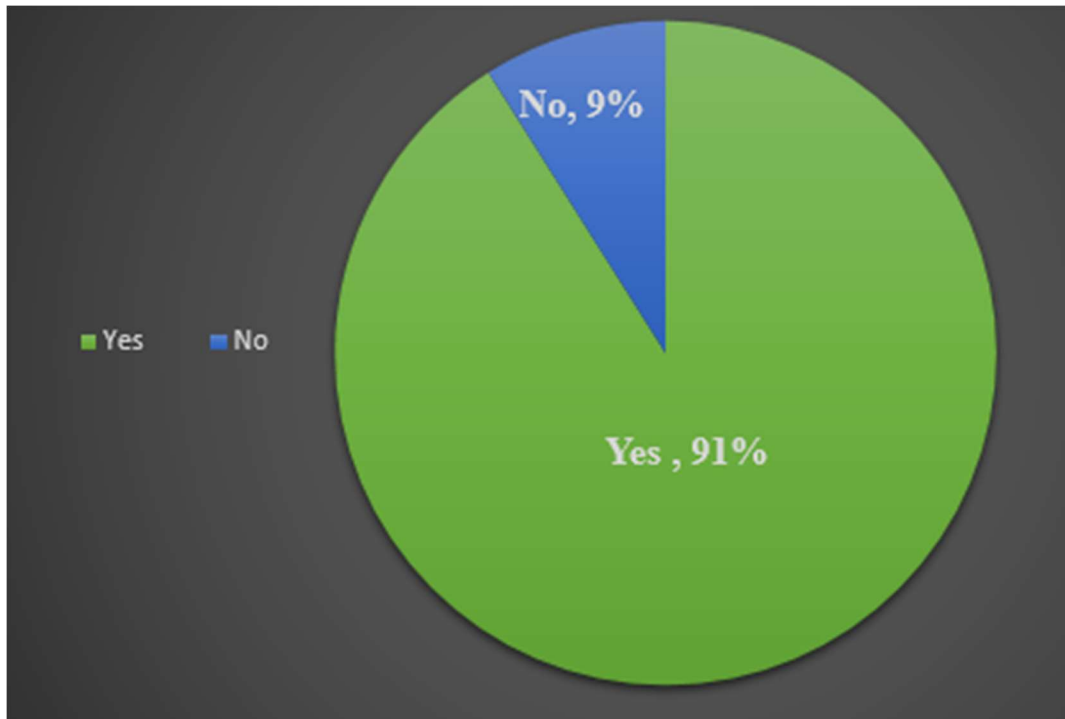


Figure 12: Taken antidepressant without doctors' advice

**Interpretation:** Clinical depression is treated using antidepressants, a class of medication. They can also be utilized for treating a variety of other illnesses, such as generalized anxiety disorder and obsessive compulsive disorder (OCD). (PTSD) post-traumatic stress disorder. **Most of the responders (91%) has been responded that they have been taken antidepressant without doctor suggestions. Everyone should be taken drug by prescriber advice except OTC drugs.**

### 5.10 What kind of medicine did the doctor give for depression?

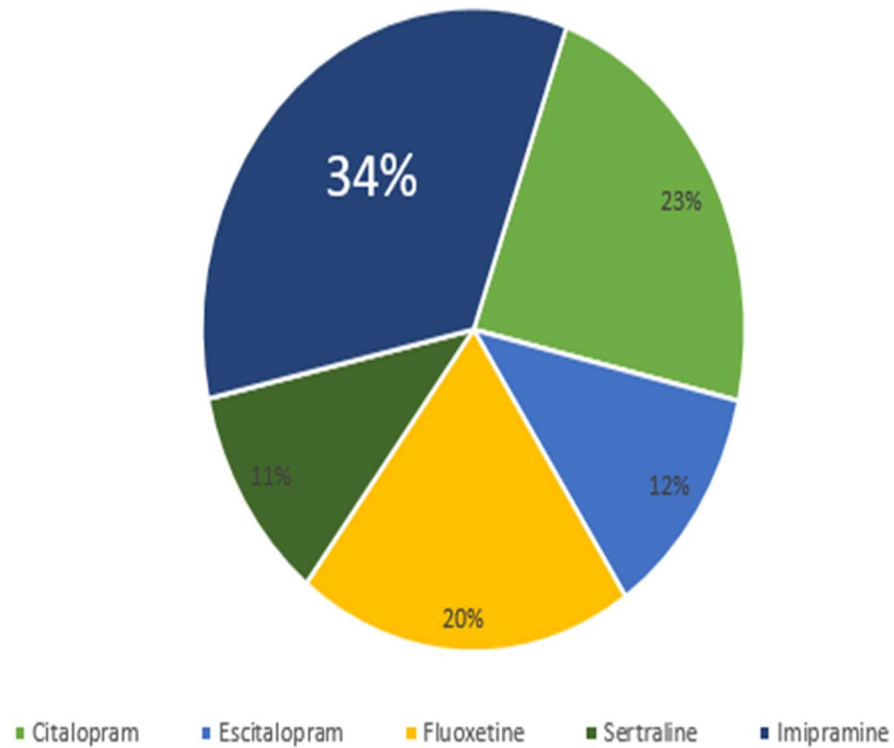


Figure 13: Given medicine by doctor

**Interpretation:** According to the survey, 34% responders replied that doctor given Imipramine for management of depression. 23%, 20%, 12% & 11% also replied that doctor have been given respectively Citalopram, Fluoxetine, Escitalopram & Sertraline.

### 5.11 Which type of side effect have you been felt after taking antidepressant?

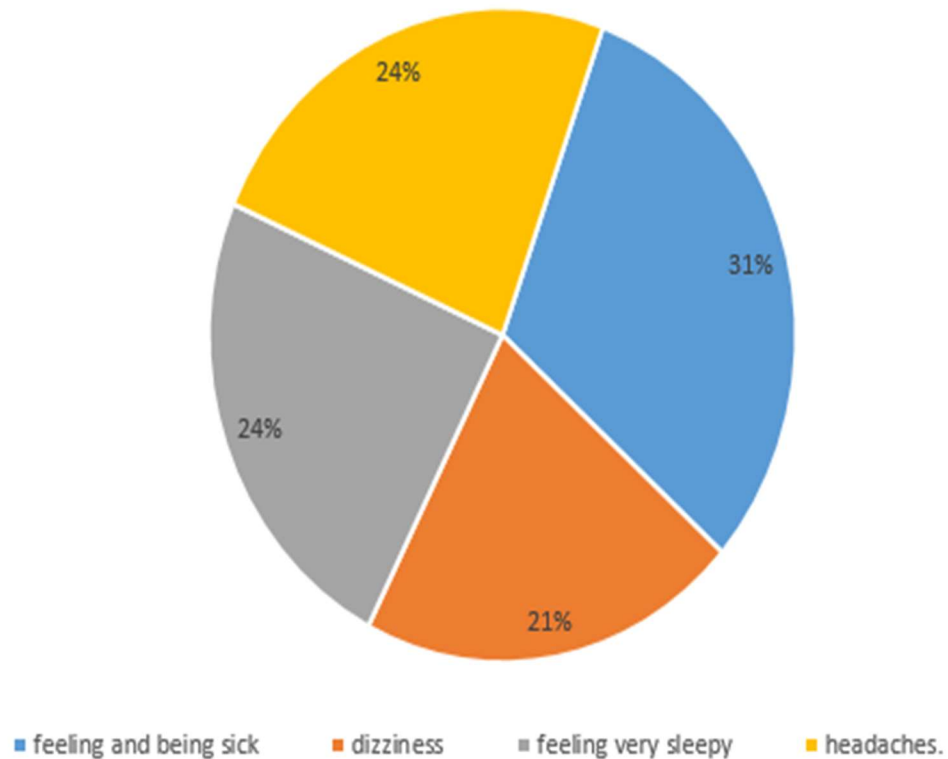


Figure 14: Side effect of antidepressant

**Interpretation:** According to the survey, 31% participants replied that they have been felt feeling sick after taking antidepressant. Also 24%, 21%, 24% participants replied that they have been respectively felt Headaches, Dizziness & Felling very sleepy.

# **Chapter 6**

## **Conclusion**

## 6.1 Conclusion

Major depression has increased in frequency over the past few decades, and studies suggest that immune system stimulation and cytokine production may be contributing factors. According to the survey, 25% responders came to the hospital suffering from hypertension, 18% suffering from diabetes & 28% people came suffering from depression. 54% responders replied that they have been worried about something. Permitting this survey, most of the people 67% replied that they didn't get enough sleep. According to the survey, 36% responders replied that they have been felt hopeless, 33% have been felt helpless. Feeling hopeless/helpless is the primary symptoms of depression. 28% responders replied that they have been taken alcohol/drugs. Most of the responders (91%) has been responded that they have been taken antidepressant without doctor suggestions. Everyone should be taken drug by prescriber advice except OTC drugs. According to the survey, 34% responders replied that doctor given Imipramine for management of depression. 23%, 20%, 12% & 11% also replied that doctor have been given respectively Citalopram, Fluoxetine, Escitalopram & Sertraline. According to the survey, 34% of respondents replied that their doctor gave them imipramine for management of depression. 23%, 20%, 12%, and 11% also replied that doctors have been given respectively as Citalopram, Fluoxetine, Escitalopram, and Sertraline. According to the survey, 31% of participants replied that they felt sick after taking antidepressant. Also, 24%, 21%, and 24% of participants replied that they have been felt headaches, dizziness, and falling very sleepy. In this survey, we can say that most of the people have been taken antidepressants irrationally, and they have also been taken antidepressant without the prescriber's advice.

# **Chapter 7**

## **Reference**

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