Depression: A Major Global Concern?

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by

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Dedicated to my parents

Certification Statement

This is to certify that the project titled "Depression: A Major Global Concern?" submitted for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy from the Department of Pharmacy, BRAC University constitutes my own work under the supervision of Professor **Dr. Eva Rahman Kabir**, Chairperson, Department of Pharmacy, BRAC University and **Dr. M. Zulfiqiuer Hossain**, Associate professor, Department of Pharmacy, BRAC University that appropriate credit is given where I have used the language, ideas or writings of another.

Signed,

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Countersigned by the Supervisor

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Acknowledgement

The blessings and mercy of the Almighty Allah who is the source of our life and strength of our knowledge and wisdom, has helped me to continue my study in full diligence which I hope will reflect in my project.

This research could not also have been completed without the support of many people who are gratefully acknowledged here.

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Abbreviations

WHO = World health organization

FDA = Food and drug administration

SAD = Seasonal affective disorder

MAOI = Monoamine oxidase inhibitor

SSRI = Selective serotonin reuptake inhibitor

SNRI = Serotonin non-epinephrine reuptake inhibitor

TCA = Tricyclic anti-depressant

NGO = Non-governmental organization

NIMH = National institute of mental health

Abstract

Depression is termed a serious medical illness which is now becoming one of the leading causes of disability. Psychological disorders such as depression, anxiety, panic disorder, schizophrenia, insomnia, eating disorder, obesity etc. account for 13% of the burden of the disease and have become a major concern of human health. About 80% of people living in low and middle-income countries are found to have mental disorders. According to a WHO report depression is more prevalent than violence, heart disease, accidents and strokes. In the present study, approximately84% of 400 respondent were found to be anxious of some level. These percentages are quite alarming in themselves, as these could hint at mild to severe anxiety. 31% were also found to have said depression did not "at all" make functioning difficult whereas 32% said it mildly did and the rest said "moderate" to "severe". The 14.8% of people answering "severe" are people who need to be treated immediately as they felt depression made it difficult for them to function in their personal, social, or work life. 62.3% of people said they have trouble in focusing, concentrating or remembering things. Most importantly, 45%, the majority, said "not at all" on the question of committing suicide. Rest of the people said "only slight" or "partly". A few people, worryingly enough, said they wondered about committing suicide "to a great extent". The 15-17% who gave strong responses on committing suicide, are definitely under mild to severe depression, whether temporary or a long-term one. It is predicted that by 2020 depressive disorder will be the most important cause of disease burden in the entire world. Every human being suffers from feeling depressed at some point or other, but only about one fifth of the population actually experience an episode of depressive disorder over the course of their lives. It is thus imperative that a public health approach to disease and the particular complexities of applying this approach to mental disorders, using depression as the exemplar must be taken immediately to avoid or minimize this.

1. Introduction

According to the World Health Organization (WHO), health can be defined as "a state of complete physical, mental and social well-being and not merely the absence of disease." Globally, psychological disorders account for 13% of the burden of disease and have become a major concern of human health worldwide (WHO 2008). People of almost every age group of every community in all countries have been found to be inflicted by various types of mental disorders, which worsen with time as they are often alienated in the society. Moreover, the low and middle-income countries have been reported to bear the highest burden of mental disorder compared to the developed countries (Islam. A & Biswas. T, 2015) implying a relation between mental health and economic development. Approximately, 80% of the people living in low- and middle-income countries are found to have mental disorders (Jacob and Patel, 2014). Despite the fact that psychological disorders are the fourth most common cause of disease burden worldwide, they have not received much attention from policy makers in developing countries like Bangladesh. According to the WHO, more than 450 million people worldwide suffer from neuro-psychiatric diseases and among them 15 million are in Bangladesh. They are suffering from mental disorders of different types and among the different types of mental illnesses, depression is very common.

Different factors affect mental health. People these days spend more than 90% of their time indoors which has an effect on mental health (Evans, 2003).The home environment is also found to affect mental health. To begin with, the quality of accommodation including the structure of the house, maintenance, presence of physical hazards, etc. is clearly associated with mental health. A number of previous studies showed that when people move to a better house, their mental condition also improves in comparison to those who stay put (Evans, 2003). However, moving to a new neighborhood can bring its own challenges People sometimes struggle to adjust as they meet new neighbors, especially when relocating from low income neighborhoods to middle income areas (Evans, 2003). Overcrowding and noise pollution lead to mental disturbance. Children suffer from adverse mental health effects due to overcrowding in their homes. People living near airports are particularly vulnerable to adverse psychological effects of noise pollution (Evans, 2003). Indoor air quality as well as outdoor pollutants have been found to have an impact on mental health. Toxic substances such

as lead, pesticides and odorous substance cause psychological disturbance. A common psychological disorder Seasonal Affective Disorder (SAD) is caused by changes in seasons. Treatment for SAD often includes light therapy, underscoring the need for a certain level of sunlight exposure to maintain sound mental health (Evans, 2003). Several studies have shown a positive relationship between mental health and social support (Evans, 2003). There are many ways by which environment may influence the maintenance and development of social networks. For example, residents of a densely populated residential area sometimes experience social withdrawal. Excessively high population densities destroy the development and maintenance of socially supportive relationships (Evans, 2003). When people can control their surroundings, they exhibit a mental satisfaction but when people cannot control their surroundings they become helpless. High exposure to noise in local community also affects school children (Evans, 2003).

2. Depression

According to the US FDA (2017), depression is termed as a serious medical illness which is also called "major depressive disorder" or "unipolar depression". 350 million people worldwide are affected by depression (US FDA, 2017). According to the World Health Organization (WHO), depression is now becoming one of the leading causes of disability. Medication is not necessarily effective for the treatment of all kinds of depression. However, medications which are approved for treating depression by the U.S. Food and Drug Administration, termed as "anti-depressant", can be helpful to improve symptoms in many cases.

Depression is a major global issue now-a-days. According to a WHO report 2004, depression is more prevalent than violence, heart disease, accidents and strokes (Nelson, 2012). To be the effective treatment of major depressive disorder we must have to understand about depression, manifestation of depression and etiology of this disease (Nelson, 2012). At least five among all the symptoms must be present during a 2-week period to meet the criteria of major depressive disorder (Nelson, 2012). These are:

- ✓ Loss of interest
- ✓ Depressed mood
- ✓ Weight loss significantly
- ✓ Significantly weight gain
- ✓ Fatigue
- ✓ Hypersomnia or insomnia
- ✓ Feelings of guilt
- ✓ Psychomotor retardation or agitation
- ✓ Difficult in concentrating
- ✓ Recurrent thoughts of suicide or death

Depression is an illness found to affect all age groups. Nowadays, depression among the students is very prevalent and this varies from 2% to 50% (Kumaraswamy, 2012). In community and primary care patient population, psychiatric conditions such as depression, anxiety and other stress-related disorders are most frequently diagnosed (Jacob and Patel,

2014). It was found that one in every ten students have conditions that needs professional consultation (Fransworth, 1997). Another statistic has shown that, at a definite time, 25% of students were reported to have depression (Beck and young, 1978) and the number has significantly increased over the years. There are several reasons behind the prevalence of depression among the students, such as peer pressure, family pressure, stress from adjustment to a new environment, changes in family bonding as well as social life, fear of downfall, inability to cope up with the competitive environment, inferiority complex, etc. (Kumaraswamy, 2012).

2.1 Types of Depression

There are various types of depressive disorders. As the symptoms of depression may range from relatively minor to severe, we need to be aware of them. The causes of depression can sometimes be quite complex and a combination of factors.

2.1.1 Major depression:

It is also known as major depressive disorder, unipolar depression, and clinical depression and involves symptoms like loss of interest in usual activities, low mood, etc. These symptoms interfere with personal life, as well as social relationships and work. Depression can either be severe, moderate or mild; or even melancholic or psychotic.

2.1.2 Melancholia:

This is a severe form of depression where various physical symptoms of depression are present. The major effect of this depression is depressed mood and the depressed person tends to move slowly than the usual.

2.1.3 Psychotic depression:

People with this depression may lose trust on reality and experience psychosis. This also involves symptoms like hallucinations and delusions.

2.1.4 Antenatal and postnatal depression:

These types of depression symptoms can be seen in women during pregnancy and even in the year following childbirth. Depression during pregnancy is known as antenatal depression and depression in the year of childbirth known as postnatal childbirth.

2.1.5 Bipolar disorder:

Bipolar disorder is also known as 'manic depression' because the patient experiences periods of depression and periods of mania. Mania is opposite of depression and varies with intensity. The symptoms most commonly experienced are having lots of energy, feeling great, little need for rest, difficulties in concentrating and feeling irritated and frustrated. Bipolar disorder has been found to have a close link to family history.

2.1.6 Cyclothymic disorder:

Cyclothymic disorder is a milder form of bipolar depression. The patient may experience some fluctuation of moods over at least two years which involves periods of hypomania and depressive symptoms.

2.1.7 Dysthymic disorder:

The symptoms of this depression are similar to major depression but less severe. But in dysthymia, symptoms are found to last longer.

2.1.8 Seasonal affective disorder (SAD):

This is a mood disorder which has a seasonal pattern. The reason behind this depression is unclear but it is thought that it may have some positive relation with the variation in light exposure in various seasons. People with this disorder experience energy loss, excessive sleeping, and weight gain, crave for carbohydrates and over eating.

2.2 Symptoms of depression

Depression may also cause significant impairment in work areas, social and other sectors. These symptoms should not occur due to use of any substances, other mental disorders or

because of any medical condition (Nelson, 2012). Apart from all of these the patient cannot be a manic patient and should not be any history of mixed episode (Nelson, 2012). It is also an important factor to consider that the patient with major depressive disorder have high risk for developing anxiety, impulse control, substance control or phobias as a co-morbid mental illness (Nelson, 2012).

2.2.1 Loss of interest:

Lack of interest in day to day activities can be a symptom of depression. People who are depressed will notice that they are not interested in such things that they are interested previously (Nelson, 2012). Some may notice that the result of depression of a person is withdrawing from family or friends that results isolation and making a person depressed. Other may describe depression as unable to experience happiness (Nelson, 2012). Loss of sexual desire can also be noticed in depression (Nelson, 2012).

2.2.2 Depressed mood:

Depressed mood is one of the major symptoms of major depressive disorder. It is well described as feeling down, hopeless or sad. Patient with depressed mood are notably anxious, empty or sad and also may feel helpless, worthless or helpless (Nelson, 2012). Some people with depressed mood may not be able to express feeling and some people may deny depression. Some life events may participate in depressed mood like as: financial difficulties, childbirth, unemployment, work stress, bullying, menopause, isolation by society, rape, natural disasters, jealousy, separation, relationship difficulties etc. The most important fact is to observe the effect of patients and pay attention to the voice tone, posture and facial expressions (Nelson, 2012).

2.2.3 Weight change:

Weight change is seen in depression as appetite changes. This also manifests as a change of appetite though some may crave foods containing carbohydrates and fat (Nelson, 2012).

2.2.4 Fatigue:

Fatigue is a feeling of tiredness that can be alleviated during resting period. Fatigue has both physical and mental causes. Physical fatigue indicates the inability of muscle to maintain physical performance properly. On the other hand, is a decrease in cognitive performances. Excessive fatigue may be a symptom that greatly affects a person. One may lack the energy to perform day to day activities. Tiredness or even a full night asleep is also common in fatigue (Nelson, 2012).

2.2.5 Changes of sleep habits:

Insomnia is very common symptoms of major depressive disorder. Patient may feel that they wake up at the middle of sleep and unable to go back to sleep (Nelson, 2012). Other patients may be lie awake as they are not able to initiate sleep (Nelson, 2012).

2.2.6 Feeling of guilt:

Patient experiencing major depressive disorder may have intense feeling of guilt. They may feel that they do not deserve that they have in their life (Nelson, 2012). They may feel guilt by thinking about their past and present events. Furthermore, they may misinterpret things done or said by others (Nelson, 2012).

2.2.7 Psychomotor retardation or agitation:

People can observe the changes of psychomotor and this also includes agitation resulting in restlessness, leg bouncing or pacing (Nelson, 2012). On the other side, retardation may manifest as slow movement, slow speech or delay in responding or answering questions (Nelson, 2012).

2.2.8 Difficulty in concentration:

Difficult in concentrating on tasks is common in-patient suffering from major depressive disorder as this disturbs normal functioning. This may lead to educational problems, relationship problems as well as occupational problems (Nelson, 2012).

2.3 Depression leading to suicide

Suicide is the biggest concern of the patients with major depressive disorder. Thoughts of death among the depressed patients are very common and this may vary depending on its severity (Nelson, 2012). It turns a very dangerous condition if the patient has already made of committing suicide (Nelson, 2012). Suicide is a critical issue of major depressive disorder that needs to be addressed since it has many worse outcomes

A person planning to suicide may show some behavioral symptoms, e.g. many mention to someone close to the person about suicide or die. There is estimation that 15% of people who have major depressive disorder have attempted suicide at least once in their life and 29% of population who have bipolar disorder experience a suicide attempt in their lifetime (Oquendo, Currier, Mann, 2006). In this disorder, there is a risk of elevation of suicide compilation and between 2% to 10% of patients are with major depressive episode (Oquendo, Currier, Mann, 2006). Furthermore, as the bipolar disorder have a major depressive episode and the misdiagnosing of bipolar disorder that had been reported to more than 30% leads the suicidal tendency among patients (Zalsman, et al., 2006).

Another study mentions that a considerable reality of major depressive disorder is 0.045% of the general population worldwide commits suicide every year and 3 to 5% of people in their life attempts to commit suicide at least one time in their life (Rihmer, Gonda, Rihmer, Fountoulakis, 2010). Suicide is more prevalent in adults and 10-18% of adult report that they experience a suicidal ideation at least once in their whole life (Rihmer, Gonda, Rihmer, Fountoulakis, 2010). Approximately more than 90% of people worldwide are suicide victims or suicide attempters and among them 56-87% have major depressive episode, 26-55% have substance use disorder and 6-13% have schizophrenia (Rihmer, Gonda, Rihmer, Fountoulakis, 2010).

There are several factors that cause depression leading to suicide (Table 1). These are medical, psychological and demographic risk factors (Rihmer, Gonda, Rihmer, Fountoulakis, 2010). Firstly, the medical suicidal risk factor includes major mental disorder, personality mental disorder, medical disorder, anxiety disorder etc. secondly, the psychological suicidal risk factor includes adverse life conditions such as: unemployment,

isolation; childhood events like: abuse, loss of parents or loss of nearest person; stress psychologically such as: loss of events, trauma etc. lastly, the demographic suicidal risk factor includes adolescence mainly boys, victims of any disaster or vulnerable intervals etc (Rihmer, Gonda, Rihmer, Fountoulakis, 2010).

Table 1: Classification of suicidal risk factors (clinically explorable)

1. Medical or psychiatric suicidal risk factor (primary)	a. Major mental disorders (current or past) ➢ Anxiety disorder ➢ Suicidal attempt or ideation b. Personality mental disorders. c. Medical disorders ➢ History of family suicide
2. Psychological suicidal risk factors (secondary)	➢ Childhood events like as: separation, loss of parents, abuse etc. ➢ Adverse life situations like as: isolation, unemployment etc. ➢ Stress psychologically such as: trauma, loss events etc.
3. Demographic suicidal risk factors (tertiary)	➢ Adolescence specially for boys ➢ Groups of minorities (victims of any kind of disasters, suicidal victim family members or relatives etc.) ➢ Vulnerable intervals (morning hours, spring or early summer etc.)

(Rihmer, Gonda, Rihmer, Fountoulakis, 2010).

2.3.1 General indicators of suicidal behavior in patients (Clinically)

- Major depressive episode (severe): bipolar disorder, unipolar disorder, insomnia, agitation, stress, hopelessness, mania, schizophrenia, anxiety, lack of treatment, status of the hospitalized patient, lack of support from family and society
- Previous suicidal ideation

- Mixed episodes
- Mania (Dysphoric)
- Previous suicidal attempt (s)
- Aggressive personality
- Family history of suicide (Rihmer et al, 2010)

According to Oquendo, et al., (2006); Rihmer, et al., (2010) and Zalsman, et al., (2006) a list of protection against suicide has been suggested as given below:

- Strong family support
- Strong social support
- Adequate medical care
- Belief in a religion

2.3.2 Indicators of suicidal behavior in university students

According to Kumaraswamy (2012), the emotional and psychological problems encountered by students include:

1. Anxieties about aspects of study including exams and presentations
2. General stress and anxiety
3. Depression
4. Relationship difficulties
5. Eating problems
6. Bereavements and parental separations
7. Loneliness and home sickness
8. Lack of self-confidence or low self esteem
9. Managing transitions
10. Making difficult decisions
11. Traumatic experiences including rape, assault and abuse
12. Difficulties with alcohol or drugs
13. Issues around sex and sexuality

14. Self-injury
15. Suicidal thoughts
16. Anger management
17. Worries about appearance

In a study of psychological disorders of college students of 100 medical students (Kumaraswamy, 1990) was found that, 26% of them suffer from mental distress and 31% from anxiety and depression. It is also known that depression, stress and anxiety are prevalent among college students (Kumaraswamy, 2012).

2.3.3 Diagnosis

Diagnosis of depression, done by a health care professional, mainly depends on the duration, number, and severity of depressive symptoms (US FDA, 2017). This includes the following:

- Depressed mood
- slowed or agitated movements
- Losing of interest in many activities
- Appetite change
- Weight gain or lost.
- Disturbed sleep or sleeping more than the usual
- Energy lost or fatigue
- Feelings of worthlessness or guilt
- Trouble in concentrating, thinking or decision making.
- Suicidal tendency
- Thoughts of death

Doctors are found to typically consider background history, as well as behavior and mental status of patients when evaluating a possible diagnosis of depression. The doctor may also evaluate symptoms, physical causes of depression (such Parkinson's disease or thyroid

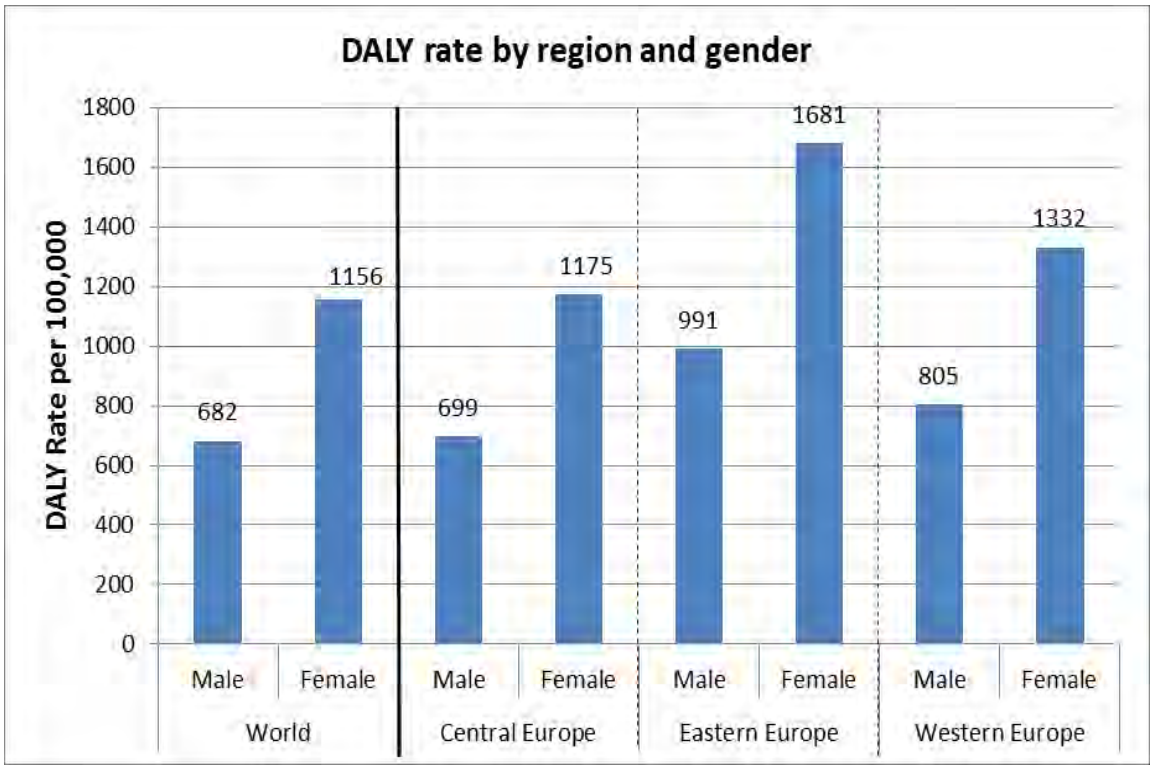
disease), and make a decision if depression is an appropriate diagnosis. (US FDA, 2017). Doctors should also screen patient for bipolar disorder which is a brain disorder that causes unusual shifts in energy, mood and level of activity, as well as changes in ability to do day-to-day tasks. If medications approved for treatment of depression are prescribed wrongly to a patient with bipolar disorder it may cause mania which is a disorder that caused unusually mood elevation. If mania is prone, a person can become psychotic (US FDA, 2017).

2.4 Causes

Depression is a common mental disorder that is characterized by loss of interest or pleasure and leading to feelings of guilt or low self-worth, trouble sleeping or disturbed appetite, low energy, and poor concentration, insomnia and occasionally suicidal thoughts. Depression often occurs as a result of adverse life events, such as: the loss of a significant person, relationship, health or object. However, it can also occur due to no apparent cause. These problems can become chronic and lead to substantial impairment in an individual's ability to take care of their responsibilities (Report, WHO, 2015).

It is associated with a combination of genetic, environmental, biological and psychological factors. The risk factors for depression are pregnancy, menopause, hormonal factors, childbirths and menstruation, impulsive behavior, alcohol or substance abuse, stress and previous family history of alcohol abuse, depression or suicide. Other factors such as severe medical conditions, insomnia, poverty, being a female, partner violence, (childhood) tobacco use and sexual abuse are also associated with depression (Report, WHO, 2015).

Depression in young generation may be expressed differently from that in adults, with manifestation of many behavioral disorders including verbal aggression, irritability and misconduct, substance abuse, suicidal thoughts, concurrent psychiatric problems, hopelessness, overeating and oversleeping, rage and social isolation. In the elderly, the behavioral and physical symptoms of depression are very intense that they easily mask the psychological symptoms up to the point that they may have to suffer “depression without sadness”. The coexistence of various chronic conditions also complicates the diagnosis. Furthermore, different classes of drugs that elderly people may take can induce depression (Report, WHO, 2015).



Source: Global Burden of Disease Study (2010)

Seattle, Washington University Institute for Health Metrics and Evaluation, 2013

Figure 1: DALY rate for Major Depressive Disease per 100 000 by gender and region.

The Stanford Survey had found mental distress to be extremely common among the students. 1 student out of 3 students described the tense or anxious. As, depression is a vital issue, 1 student in 5 students described themselves as "tired without any apparent reason". Among them 43 percent said sometimes felt "so depressed it is hard for them to get going" and 16 percent reported feeling that life is not worth living (Martinez & Fabiano, 1992) (Kumaraswamy, 2012). As per analysis of several articles published on the mental distress of college students, it is easy to conclude that 20 to 25 percentage of student population worldwide suffering from mental distress (Kumaraswamy, 2012). Stress is any situation that evokes negative thoughts and feelings in a person. Stressful events can be appraised by individual as "Challenging" or "threatening" (Lazarus, 1966; Kumaraswamy, 2012).

Several problems lead to depression. Some common prevalent are mentioned below:

Academic Problems includes the following (Andrews & Beehr) (Bhasin, Sharma, &Saini, 2009):

- Difficulties in putting concentration
- Difficulties in remembering studies
- Not able to study properly
- Got distracted easily
- Language barriers
- Specific subject is very difficult.
- Not interested in studies (Kumaraswamy, 2012)

Emotional Problems includes the following:

- Feeling inferior to others
- Lack of thinking
- Angry and irritable for minor reasons
- Depressed and sad for minor reasons
- Feeling anxious without any reason
- Feeling useless
- Feeling incompetent
- Feel that life is not worth living
- Worry for unnecessary things
- Worrying excessively even in minor reasons
- Trouble sleeping
- Appetite problem (Kumaraswamy, 2012)

Blain and McArthur (1961) states that most of the psychological disorders reported by students are:

1) Dislike towards a course
2) Laziness

3) Inability to learn the foreign language

4) Uncontrollable tension

5) Frustrating or disappointing relationship

6) Illness of a close family member (Kumaraswamy, 2012)

Similarly, in a 1978 report by Beck and Young, at any given time 25% of student population reports the symptoms of depression to be a result of the following factors:

- Stress from increased load of college work
- Isolation and loneliness
- Problems with studying and low grades
- Breakup of intimate relationship (Kumaraswamy, 2012)

Screen based media also causes psychological disorders. Extensive screen use has been found to have impacts on mental health. A recent study done on young generations in Australia reported that, most of them exceeded the daily recommendation of screen time (which is less than 2 hours) per day (Erin, Karen, Charlie & Steven, 2017). A large number of adolescents reporting some psychological disorders which have many possible relations between screen based psychological disorder (such as: Depression, anxiety) and mental health but limiting of the screen based media use among the children was 'virtually impossible' ((Hoare, Milton, Foster & Allender, 2017)). Moreover, some research also indicated both negative and positive effect of screen use on mental health depending on the frequency and time of use (Erin, Karen. Charlie & Steven, 2017).

2.5 Treatment

Medications which are approved for treatment of depression affect different neurotransmitters in a various way. For example, SSRIs are working by increasing the signaling of serotonin in the brain. And MAOIs mainly works by blocking monoamine oxidase. Monoamine oxidase is an enzyme which is responsible for breaking down neurotransmitters (US FDA, 2017). "Some evidence shows that the most effective way to treat many patients with depression is

through a combination of talk therapy and prescribed antidepressant medication," according to Mitchell Mathis, M.D., director of the Division of Psychiatry Products at the FDA. Generally patient must take regular doses of a prescribed antidepressant medication for several weeks as to obtain the full effect of the medication (US FDA, 2017). However, without the concern of the doctor patient cannot stop using anti- depressant medication even if you feel better. Sudden, stopping of medication can result in withdrawal symptoms such as: anxiety and irritability or even relapse of depression episodes (US FDA, 2017)

A significant percentage of people may not respond to a prescribed antidepressant. In these cases, switching to a different medication or adding another medication can sometimes help treat symptoms. Some people may not respond to medication at all and must be consulted with doctors (US FDA, 2017).

Anti-depressants such as (serotonin, nor epinephrine, and dopamine) are medications that are thought to work by changing neurotransmitters (brain chemicals) are responsible for regulating mood. (US FDA, 2017). According to a 2017 US FDA report, anti-depressants can be classified as:

- Selective serotonin reuptake inhibitors (SSRIs); examples are Celexa (citalopram), Paxil (paroxetine) and Prozac (fluoxetine).
- Serotonin norepinephrine reuptake inhibitors (SNRIs); examples are Cymbalta (duloxetine) and Effexor (venlafaxine)
- Tricyclic antidepressants (TCAs); examples are Tofranil (imipramine), Pamelor (nortriptyline) and Elavil (amitriptyline).
- Monoamine oxidase inhibitors (MAOIs); examples are Parnate (tranylcypromine) and Nardil (phenelzine)

Other anti-depressants include:

- Wellbutrin (bupropion)
- Remeron (mirtazapine) (US FDA, 2017)

Anti-depressants are also known to cause several side effects. Common side effects of antidepressants can include (US FDA, 2017):

- Sleep disturbances
- Nausea and vomiting
- Diarrhea
- Sexual problems
- Weight gain

Some anti-depressants have been found to have serious risks such as the following:

- Suicidal thinking: In 2004, FDA asked manufacturers to add boxed warning in the label of all anti - depressant medications. This labeling warns about the risk of increasing suicidal thinking and behavior in children and adolescents taking antidepressants during the stage of increasing dose and in initial treatment. In 2007, FDA requested that the warning also be extended to include young adults of age 24 (US FDA, 2017).

- Birth defects: Some antidepressant medications may also harm a fetus if it is taken during pregnancy. If a patient is receiving anti - depressant medication and is pregnant, plans to become pregnant, or is breast feeding, she must talk to the doctor about benefits and risks (US FDA, 2017).

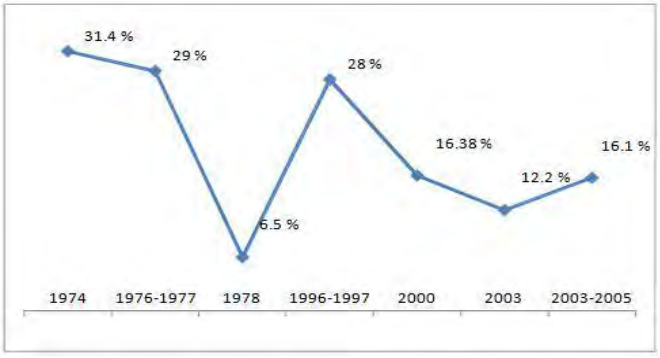
- High blood pressure: Those who are taking monoamine oxidase inhibitors must avoid certain foods containing high levels of the chemical tyramine. This chemical is found in many cheeses, pickles and wines, and some medications such as decongestants. If you take MAOIs and consume tyramine containing foods, they may interact and cause an increase in blood pressure, which may lead to stroke and many other complications (US FDA, 2017).

3. Depression in Bangladesh

According to WHO, more than 450 million people worldwide are victims of neuro-psychiatric diseases and among them 15 million are in Bangladesh. They are suffering from mental disorders of different types and among the different types of mental illnesses, depression is very common. Despite the fact that the development of mental disorder ranks the fourth position out of the ten most common causes of disease burden worldwide, the policy makers of developing countries like Bangladesh still puts this disease in low ranking in the agenda concerned with finding solutions in mitigation of such ailments. In Bangladesh, the first national survey conducted within the year 2003 to 2005 on mental health demonstrated that 16.1% of adult population had some form of mental illness and also stated that the prevalence of mental disorder was higher among women than men (Islam & Biswas, 2015). Anxiety and depression have been found to be the primary causes responsible for the mental and behavioral related problems in women (Chowdhury et al, 1981). According to a study, depression was indicted as one of the major reasons for the death of 11.4% women from suicide among a total death count of 28998 women aged between 10 to 50 years (WHO, 2004). Another study showed that 14% of women with depression have admitted to thoughts of self-harm during pregnancy (Islam & Biswas, 2015). In this study, the socio-cultural and physical factors were found to be responsible behind antenatal depression. Researchers also found that a woman who is a victim of domestic violence by her husband and who receives no support of any kind from her in-laws has the highest chance of suffering from depression (Islam & Biswas, 2015). Behavioral disorders are also a common health concern in Bangladesh A study conducted by Rabbani and Hossain (1999) found that 13.4% of people had behavioral disorders and among them 20.4% were male and 9.9% were female. According to the study of Hossain et al (2014), the occurrence of mental disorders among children in Bangladesh rose from 13.40% in 1998 to 22.9% in 2004. A community based survey which was conducted in 2009 found that the prevalence of mental illness among children is 18.4% (Islam & Biswas, 2015).

Some people especially in rural areas of Bangladesh abandons the patient with mental disorders due to the superstitious belief that the illness may have occurred due to possession by evil spirits rather than recognizing it as an ailment that can be treated. Moreover, the current scenario of mental health services in Bangladesh is not satisfactory despite having a broader

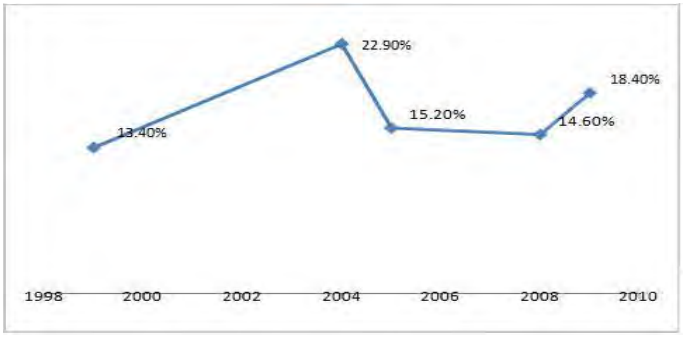
health sector. People with severe mental disorders often remain deprived of proper medical facilities due to lack of proper laboratory tests, inadequate training of the health specialists, and lack of equipment to diagnose diseases, insufficient facilities. The only mental health treatment and research facilities in the country are conducted in the National Institute of Mental Health (NIMH) which is situated in Dhaka (Islam & Biswas, 2015). In Bangladesh, the mental disorder among the adults living in rural and urban areas is very prevalent. According to a study the prevalence is decreasing from 1974 (31.4%) to 1978 (6.5%). But after that it is increasing gradually and in 2003-2005 the prevalence increases to 16.1% (Figure 2).



Source: Hossain, Ahmed, Chowdhury, Niessen, & Alam, 2014

Figure 2**:** Prevalence of mental disorders among adults in both urban and rural areas

In Bangladesh, the mental illness among the children is also very prevalent. In 1998 the prevalence was 13.40% and it is also increasing gradually and in 2010 the prevalence was 18.40% (Figure 3)



Source: Hossain, Ahmed, Chowdhury, Niessen, & Alam, 2014

Figure 3: Prevalence of mental disorder among the children in Bangladesh.

According to a WHO report (2007), Bangladesh has only one mental hospital that was established in 1957. In 1969 outdoor clinic was opened at the Dhaka Medical Hospital for the mentally ill patients. Later in 1981, the NIMH (National Institute of Mental Health) was established to provide mental health care facilities accompanied by training in providing mental health care services. In addition, some NGOs are also involved in providing mental health care services but this is not sufficient considering the total population suffering from psychiatric disorders (Islam & Biswas, 2015). However, the financing on mental health services and human resources required to offer mental health care is very limited. The Ministry of Health and Family Welfare spends only 0.5% of the total expenditure of health sector on the mental health services (Islam & Biswas, 2015). Moreover, Bangladesh has a shortage of trained human resources in the field of psychological health. Only 0.49% human resources who are trained and skilled are providing mental health services per 100,000 people. It is a matter of despair that only 0.073% psychiatrists per 100,000 populations are present in our country to treat mentally ill patients and most of the mental health care facilities are concentrated in urban areas (Islam & Biswas, 2015). An overview of mental healthcare facilities and their utilization in Bangladesh is given below:

Table 2: Mental health facilities and their utilities.

Variables	Percentage (%)
A. Beds in mental health facilities and other residential facilities	
a) Mental health Hospital	8%
B. Community based psychiatric	12%
a) Inpatients Units	0%
b) Forensic Units	20%
c) Community residential facilities	60%
d) Other residential facilities	
C. Mentally Ill Patient treated in health facilities	
a) Outpatients Facilities	26.08%
b) Inpatient Units	4.18%
c) Residential Facilities	0.85%
d) Forensic Units	0.00
D. Percentages of female users treated in mental health facilities	
a) Mental Hospital	19%
b) Residential facilities	81%
c) Inpatients Units	42%
d) Outpatients Facilities	44%
E. Percentage of children and adolescents treated in mental health facilities among all users	0%
a) Mental Hospital	73%
b) Residential Facilities	12%
c) Inpatient Units	7%
d) Outpatients Facilities	

Source: WHO, 2007

According to a source of WHO (2007), in Bangladesh we have 12% inpatient community based psychiatric units, 60% community based residential facilities, 26.08% outpatient facilities for mentally ill patients, 4.18% inpatient units for mentally ill patient. We do not

have any forensic unit for community based psychiatric care and mentally ill patient treated in health facilities. We don't have any specific mental health facilities for treating mental health of children and adolescents. We have only 8% mental health hospital then the required (Table 2). Also in Bangladesh, there is a limited mental health care facility. Only 536 hospitals with 37,387 beds provide for inpatient care in Bangladesh for a number of 160 million people (Islam & Biswas, 2015). In addition, there are a total 0f 413 Upazila Health Complexes where inpatient care service is limited (Islam & Biswas, 2015). In addition, there is only one mental hospital in our country which also contains only 500 beds (Islam & Biswas, 2015). The Financing of Mental Health Services from the Ministry of Health and Family Welfare is significant and it comprises only 0.5% of the total expenditure on health (Islam & Biswas, 2015). Among all the expenditure on mental health, 67% are committed on mental healing centers. In terms of easy access to psychotropic medicine only 0.11% population has free access (Islam & Biswas, 2015).

The Mental health policy in Bangladesh is very old and named the Lunacy Act that had been sanctioned and placed set up in 1912 when the country also under in An British settlement (1757-1947) (Islam & Biswas, 2015). This strategy reflects a dysfunctional behavior of mental health and illness. As stated by this policy, the term "lunatic" methods "an idiot or a person with unsound mind" (Islam & Biswas, 2015). Furthermore, characterizing the term, the approach additionally needs procurement for refuge or jail for people for behavioral issue, on the basis of ordered by the courts (Islam & Biswas, 2015). The people of Bangladesh are in need of replacing the outdated Lunacy Act of 1912 and better mental health care services.

3.1 Psychiatric Care in Bangladesh

Psychiatric patients are central to the effective planning of psychiatric services in the country. In both developed and developing countries patients' willingness to seek help is influenced by cultural, socio-economic, and other factors (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010). In Bangladesh, the national services are under tremendous pressure in providing mental health services for a huge number of populations and authority may face challenges for the development of metal healthcare facilities (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010). Although there are a number of researches studying the behavior of psychiatric patients worldwide, we have very few reports from Asian regions

(Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010). Mental health system in Bangladesh is also exploring the care-seeking behavior of mentally ill and the dynamics of the behavior will be helpful for an effective service development (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010).

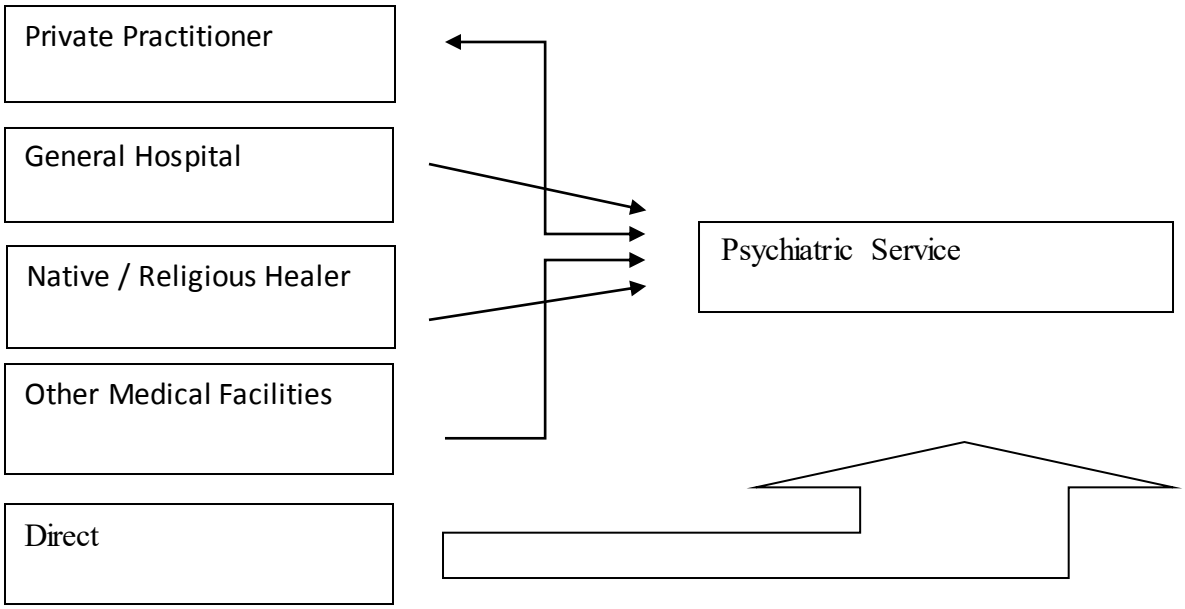


Figure 4: Diagram of pathways to psychiatric care

According to Goldberg and Huxley, there are five levels and four filters in the pathways to psychiatric care (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010) (Figure 4)

First level corresponds to the manifestation of psychiatric disorder in the population. Second level assembles to the manifestation of mental illness in those who attend their general physician. Third level assembles to the prevalence of psychiatric disorder specifically identified by the general Physician. Fourth level, the prevalence of psychiatric morbidity referred to special mental health care services. Lastly, fifth level corresponds to the prevalence of patients with mental disorders admitted to different hospital (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010). The first filter assembles patients' health-seeking behavior. The second filter manifests the ability of the General Physician to diagnose a

mentally ill patient. The third filter is the manifestation of special mental health care services. Lastly, the fourth filter is the decision by specialist mental health services to admit the patient to hospital (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010).

According to a current study, 72% of patients who are mentally ill are referred by family, friends, relatives, neighbors and patients who are being treated previously. These kinds of behavior indicate a strong social bonding in our culture. In Bangladesh, people may go different types of caregivers to cure mental and physical illness. They may consult with their family and friends, general hospitals, native and religious healers, private practitioner etc. (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010) (Table 3). A variety of treatment preferences had seen in a study where 69% people showed their preferences for qualified medical practitioners, 13.8% for traditional healers and 12.5% showed preferences for spiritual healers (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010). In Bangladesh, private practitioners are generally those who have a MBBS degree and/or are general medicine practitioners. Depending on their ease and comfort people may choose consultation from primary, secondary or tertiary level (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010). In Bangladeshi culture, there are also native healers and religious healers and religious healers. The people of Bangladesh believe that these native and religious healers can give them relief from mental illness (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010). According to religious and native healers' mental illness is caused by evil spirit by magical influences or by jinni. There are also many non-qualified medical practitioners and their existence is increasing day by day, that are not under the regulatory and monitoring policies (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010)

Table 3: Main problems presented to first caregiver and suggestion for initial consultation (Giasuddin, Chowdhury, Hashimoto, Fujisawa, & Waheed, 2010)

Main Problem	Direct Pathway (No. of Patients)	Indirect Pathway (No. of Patients)	Total Patients (%)	Suggestion for initial consultation by
Depression	2	11	13 (26)	Consultations suggested by family members (9) Consultations by self-suggestion (3)
Anxiety	3	7	10 (20)	Consultations suggested by family members (6) Consultations by self-suggestion (2)
Mania	1	4	5 (10)	Consultations suggested by family members (3) Others (2)
Psychotic	1	13	14 (28)	Consultations suggested by family members (12) Consultations by self-referral (1)
Somatic	0	4	4 (8)	Consultations suggested by family members (3)
Others	1	3	4 (8)	Not Calculated

Total	8	42	50 (100)	Consultations suggested by family members (36) Consultations by self-suggestion (8)

4. Methodology:

4.1 Research Objective and Goals

The primary objective was to gain an understanding of the overall view of depression. Therefore, the goals of the research were to identify and prioritize the possible causes leading to depression and to suggest how to avoid or treat depression.

4.2 Research Design and Methods

Extensive literature review was first done to collect all the necessary information related to depression. The research was conducted in two stages: a qualitative stage followed by a quantitative stage. A total of 12 exploratory focus group discussions were conducted in the first stage. These approximately two-hour group sessions involved university students from different universities. The findings were then used to help guide the second stage of the research—the questionnaire development for the survey. This questionnaire was pretexted several times before it was finalized.

For the quantitative stage, respondents were randomly selected from different districts of Bangladesh. Each respondent was asked to fill the questionnaire. They were assured that their information would be kept confidential. Data was then compiled. The study was carried out in different districts of Bangladesh between July 2016 and March 2017. A total of 400 participants filled up the questionnaire where 87 participants were from Dhaka, 47 from Chittagong, 60 from Barisal, 48 from Sylhet, 48 from Rajshahi, 36 from Khulna, 50 from Rangpur and 24 from Mymensingh. The data collected from was lastly analyzed using SPSS V 20.

Table 4: Name of division and number of participants of different districts

	Frequency	Percent	Valid Percent	Cumulative Percent
Dhaka	87	21.8	21.8	21.8
Chittagong	47	11.8	11.8	33.5
Barisal	60	15.0	15.0	48.5
Sylhet	48	12.0	12.0	60.5
Rajshahi	48	12.0	12.0	72.5
Khulna	36	9.0	9.0	81.5
Rangpur	50	12.5	12.5	94.0
Mymensingh	24	6.0	6.0	100.0
Total	400	100.0	100.0	

4.3 Research Questions

44 research questions (RQ) were compiled during the preparation of the questionnaire, which are as follows:

RQ 1: Are people anxious, worried or scared about everything when they feel depressed?

RQ 2: Are people worried that their anxiety goes out of control?

RQ 3: Could depression be the reason for people feeling restless, agitated or tense?

RQ 4: Do people have trouble sleeping when depressed?

RQ 5: If yes, how often do they have trouble going back to sleep?

RQ 6: Do depressed people complain of increased heart rate?

RQ 7: Some people are found to sweat profusely. Is this a sign of depression?

RQ 8: Some people are known to feel their entire body shake, tremble or felt tingly. Is this a sign of depression?

RQ 9: People complain of having difficulties in breathing or swallowing. Could this be a sign of depression?

RQ 10: People feeling pain in their chest, almost like a heart attack. Could this be a symptom of depression?

RQ 11: Could depression be the cause of people feeling sick to their stomach, like they are going to throw up, or had diarrhea?

RQ 12: Some people complain of feeling dizzy, experience sensation as if their head was spinning, or feel like they are going to faint. Is this a reason for depression?

RQ 13: Could people having cold or hot flashes suffer from depression?

RQ 14: People are sometimes scared that they would lose control. Is this a sign of depression?

RQ 15: People stopped having fun doing things that they used to enjoy. Is this a sign of depression?

RQ 16: Is unexpected loss or gain of weight a sign of depression?

RQ 17: Some people often experience a change in appetite. Could this be a sign of depression?

RQ 18: Some people often slow down compared to their usual pace. Is this a sign of depression?

RQ 19: Can unexplained exhaustion (feeling tired) be a reason for depression?

RQ 20: Do people suffering from depression feel worthless or guilty?

RQ 21: People sometimes thing of taking their own life. Could this be a reason of depression?

RQ 22: Do people feeling depressed find it difficult to function normally in their personal, social, or work life?

RQ 23: Do people suffering from depression have a sudden burst of confidence, or feel like they are better than others?

RQ 24: Is sleep deprivation a cause of depression?

RQ 25: Do people's mind get flooded with thoughts, causing them to talk faster than usual?

RQ 26: Do people try to tackle multiple goals or activities at once end up suffering in depression?

RQ 27: Will people experience extreme mood swings from depression to elation without any apparent reason as a result of depression?

RQ 28: Some people have severe mood swings. Is this a sign of depression?

RQ 29: Do people suffer from depression frequently experience panic attacks?

RQ 30: Do people fear that they might experience a panic attack? Is this a sign of depression?

RQ 31: Some people are direct victims of a traumatic event. Could this be a reason for depression eventually?

RQ 32: Could people who witnessed a traumatic event fall into depression?

RQ 33: People could be exposed to a traumatic event as a result of their job. Could this lead to depression?

RQ 34: If yes, are they haunted by memories, flashbacks, or nightmares about the event?

RQ 35: Do people lose trust in humanity and themselves and begin expecting the worst of others and of situations if they suffer from depression?

RQ 36: Do people frequently feel fear, guilt and shame or blame themselves or others for what happened if they suffer from depression?

RQ 37: Do people lose interest in activities that they used to enjoy because of the traumatic event if they suffer from depression?

RQ 38: Do people become irritable, angry or tense because of minor issues if they suffer from depression?

RQ 39: People have trouble focusing, concentrating or remembering things. Is this a sign of depression?

RQ 40: Do people avoid anything that could remind them of the event if they suffer from depression?

RQ 41: Are people suffering from depression unable to be happy and content with others?

RQ 42: People are sometimes found to have lost interest in food, fun etc. Is this a sign of depression?

RQ 43: Do people feel empty (more dead than alive) if they suffer from depression?

RQ 44: Do people think constantly about suicide if they suffer from depression?

5. Result and Discussion:

605 respondents have filled the questionnaires. However, only 400 were found to be completely valid. In this study, the male and female participants are respectively 203 and 197.

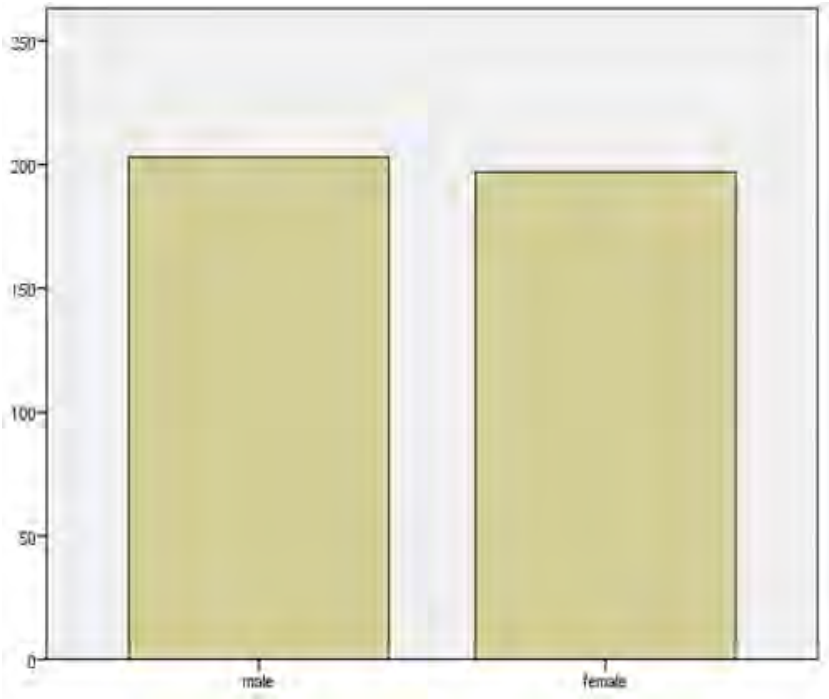


Figure 5: Gender

Table 5: Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
male	203	50.8	50.8	50.8
female	197	49.3	49.3	100.0
Total	400	100.0	100.0	

Out of the 400 respondents, approximately 37% and 32% said that they were anxious "A few times" and "often" respectively. These percentages are quite alarming in themselves, as these could hint at mild to severe anxiety.

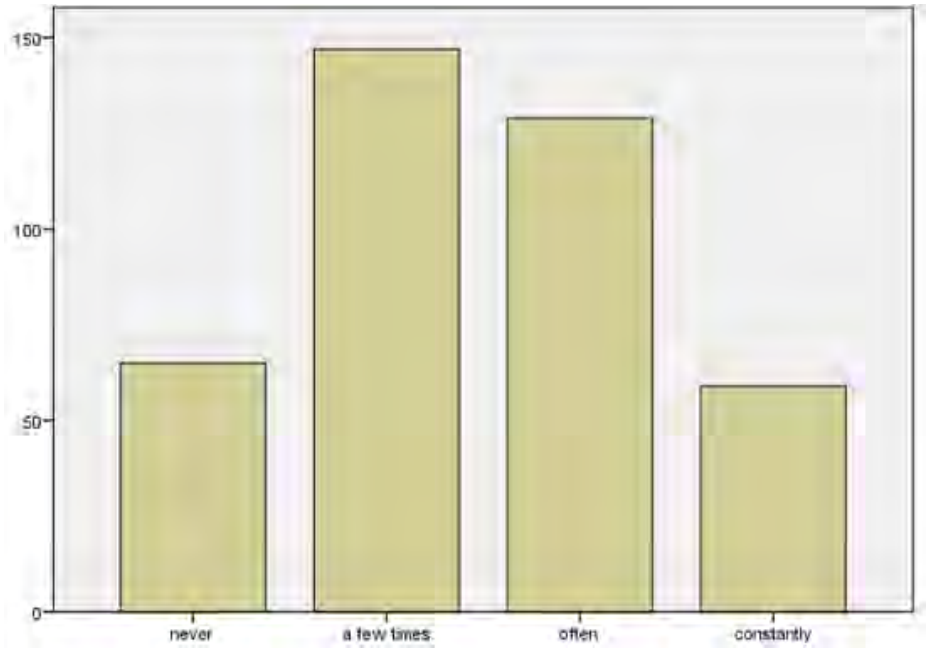


Figure 6: People anxious, worried or scared about a lot of things in their life

Table 6: People anxious, worried or scared about a lot of things in their life

	Frequency	Percent	Valid Percent	Cumulative Percent
never	65	16.3	16.3	16.3
a few times	147	36.8	36.8	53.0
often	129	32.3	32.3	85.3
constantly	59	14.8	14.8	100.0
Total	400	100.0	100.0	

In this case, 40.3% here said that they were worried "a few times" that their anxiety was out of control. 27% said never, whereas 39 people who answered "constantly" might be the later stage sufferers of depression.

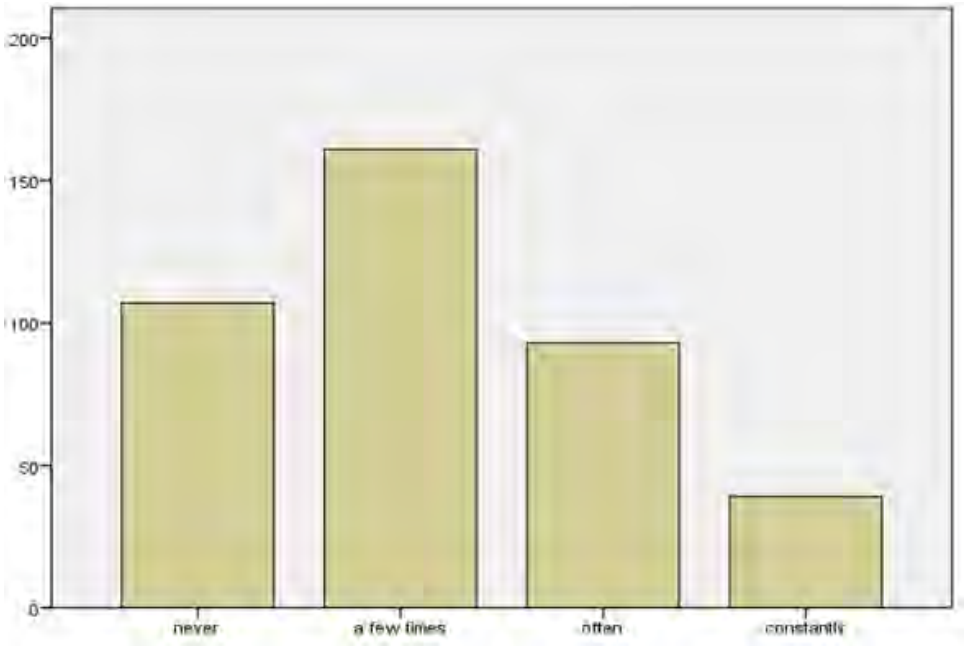


Figure 7: People worried that their anxiety is out of control

Table 7: People worried that their anxiety is out of control

	Frequency	Percent	Valid Percent	Cumulative Percent
never	107	26.8	26.8	26.8
a few times	161	40.3	40.3	67.0
often	93	23.3	23.3	90.3
constantly	39	9.8	9.8	100.0
Total	400	100.0	100.0	

Again, 43% and 34% said they felt restless, agitated or tense "a few times" and "often" respectively. These were the majority responses, showing some interrelatedness of these variables to anxiety.

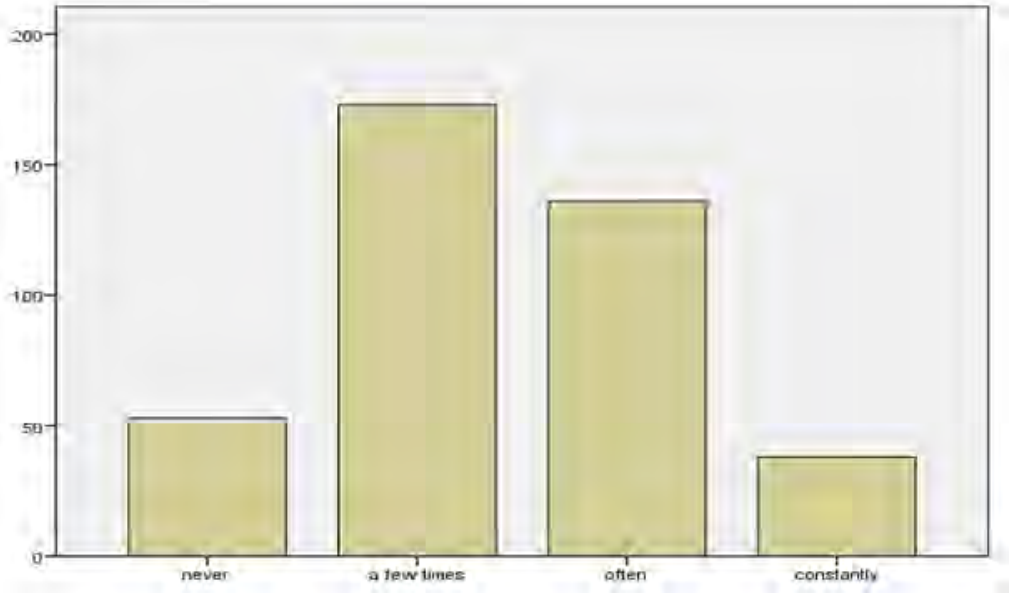


Figure 8: People feeling restless, agitated or tense

Table 8: People feeling restless, agitated or tense

	Frequency	Percent	Valid Percent	Cumulative Percent
never	53	13.3	13.3	13.3
a few times	173	43.3	43.3	56.5
often	136	34.0	34.0	90.5
constantly	38	9.5	9.5	100.0
Total	400	100.0	100.0	

49% said yes and 51% said no. This is a very close call as the respondents seem to have been divided between the options. No conclusion can be drawn here, as the results show no solid relationship between anxiety and lack of sleep.

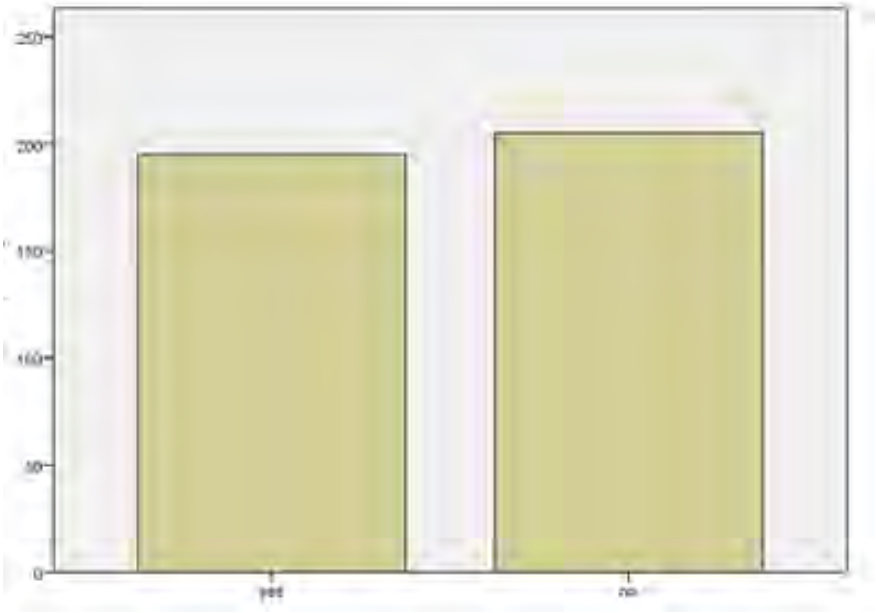


Figure 9: People having trouble sleeping

Table 9: People having trouble sleeping

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	195	48.8	48.8	48.8
no	205	51.3	51.3	100.0
Total	400	100.0	100.0	

Among those who answered "yes" that they had trouble sleeping, 46% said they "never" had trouble going BACK to sleep, while 29% said "a few times". The 28 people who said they "constantly" had trouble had trouble falling back to sleep, could be anxiety patients.

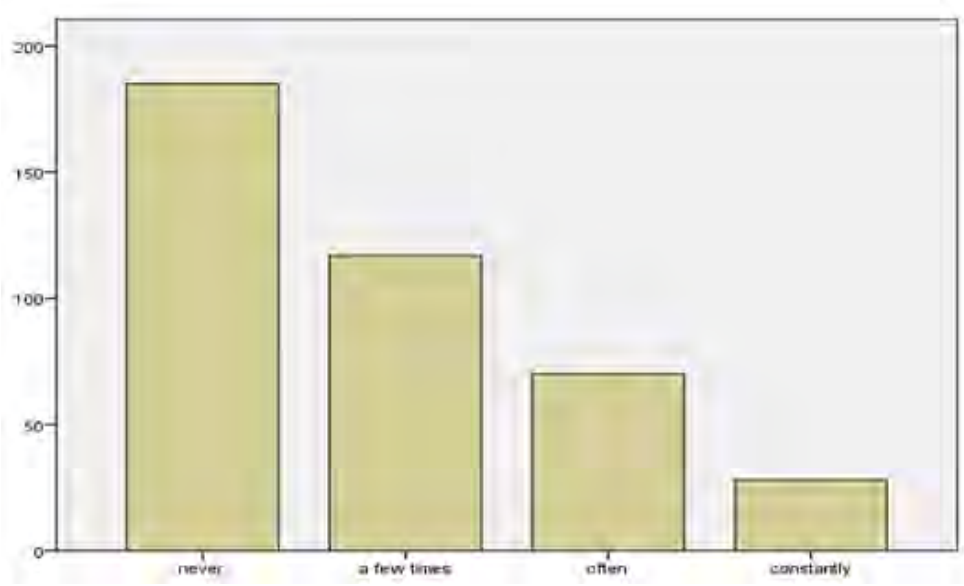


Figure 10: If yes, how often they have trouble going back to sleep

Table 10: If yes, how often they have trouble going back to sleep

	Frequency	Percent	Valid Percent	Cumulative Percent
never	185	46.3	46.3	46.3
a few times	117	29.3	29.3	75.5
often	70	17.5	17.5	93.0
constantly	28	7.0	7.0	100.0
Total	400	100.0	100.0	

139 out of 400 respondents (35%) said they found their heartbeat "mildly" increasing or pounding. But 29% and 26% answered "not at all" and "moderate" respectively. This might indicate low tendencies of palpitation in moments of anxiety among the respondents, but some 40 people did say "severe" here. Not all respondents suffered anxiety at the same seriousness.

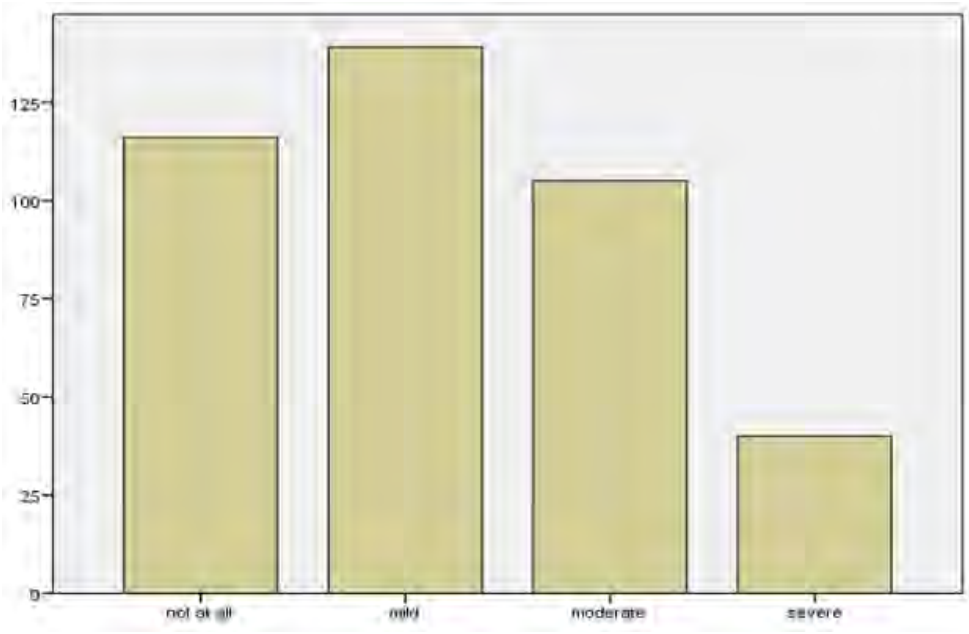


Figure 11: People found their heart rate increasing or pounding

Table 11: People found their heart rate increasing or pounding

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	116	29.0	29.0	29.0
mild	139	34.8	34.8	63.8
moderate	105	26.3	26.3	90.0
severe	40	10.0	10.0	100.0
Total	400	100.0	100.0	

37% said that they sweat "mildly" while 30% said didn't sweat profusely "at all". Again, a blurry correlation as of yet, with anxiety, but those 35 people saying "severe" could be the ones in danger of anxiety attacks.

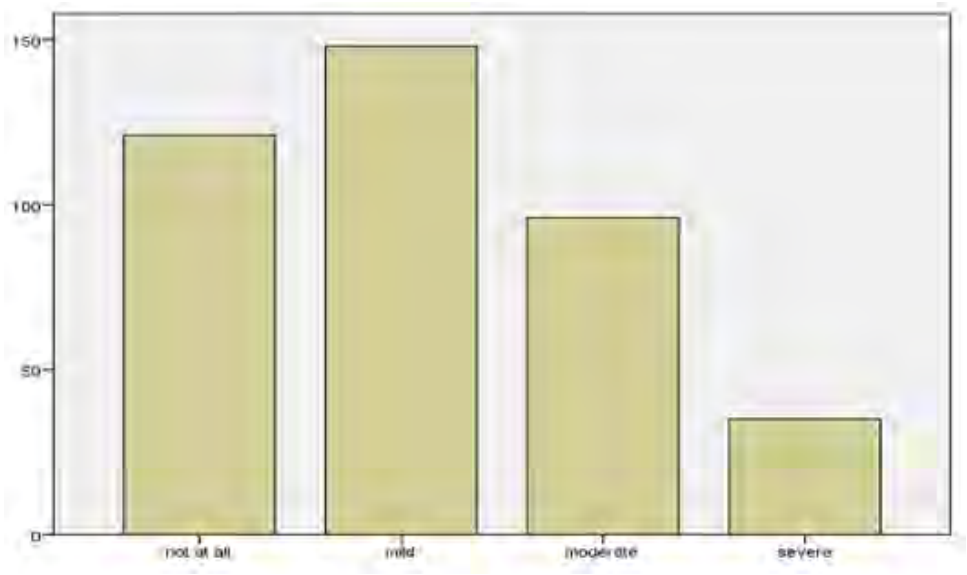


Figure 12: People who sweat profusely

Table 12: People who sweat profusely

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	120	30.0	30.1	30.1
mild	148	37.0	37.1	67.2
moderate	96	24.0	24.1	91.2
severe	35	8.8	8.8	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

44% here said “never”, while 28% said “mild”. Anxiety here among the respondents seemed to not have much severe physical symptoms, although 32 people did answer “severe” meaning they might be suffering from high anxiety or nervousness.

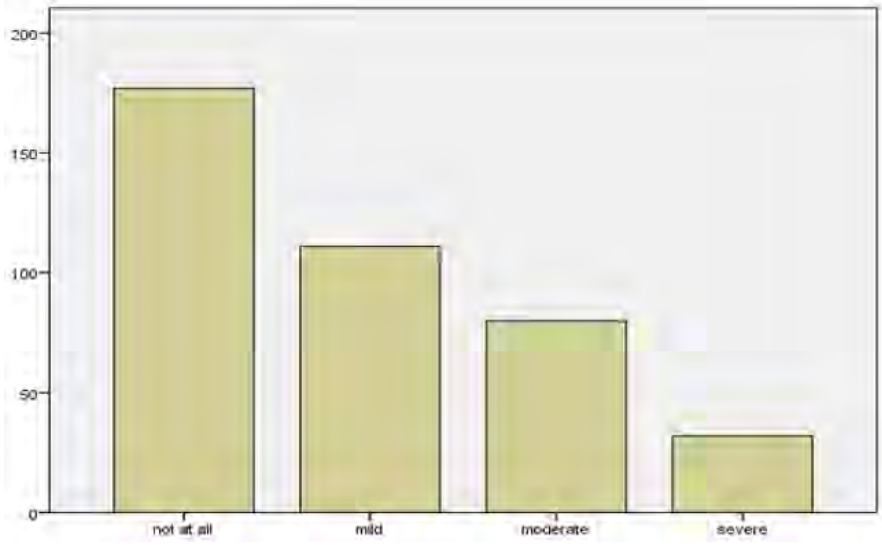


Figure 13: People feeling their entire body shake, tremble or felt tingly

Table 13: People feeling their entire body shake, tremble or felt tingly

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	177	44.3	44.3	44.3
mild	111	27.8	27.8	72.0
moderate	80	20.0	20.0	92.0
severe	32	8.0	8.0	100.0
Total	400	100.0	100.0	

44% said “not at all” while 34% said “mild” when asked about difficulties in breathing or swallowing. Depression may or may not be a reason here, since other breathing or lung diseases could cause the same.

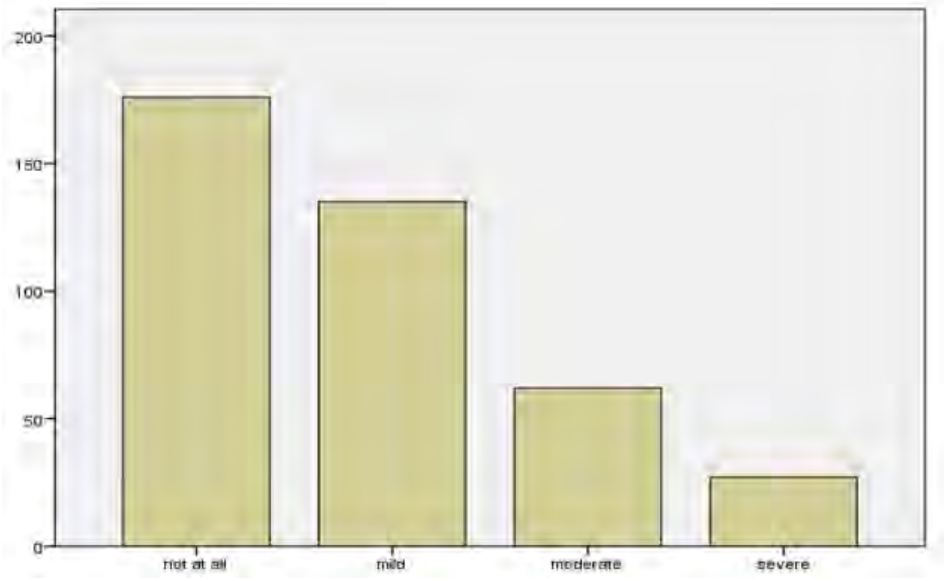


Figure 14: People having difficulties in breathing or swallowing

Table 14: People having difficulties in breathing or swallowing

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	176	44.0	44.0	44.0
mild	135	33.8	33.8	77.8
moderate	62	15.5	15.5	93.3
severe	27	6.8	6.8	100.0
Total	400	100.0	100.0	

49% here said "not at all" about experiencing chest pain, 26% said "mild" and 18% said "moderate". So, there probably was a certain number of people, although not the majority, who did experience the so-called "anxiety attacks".

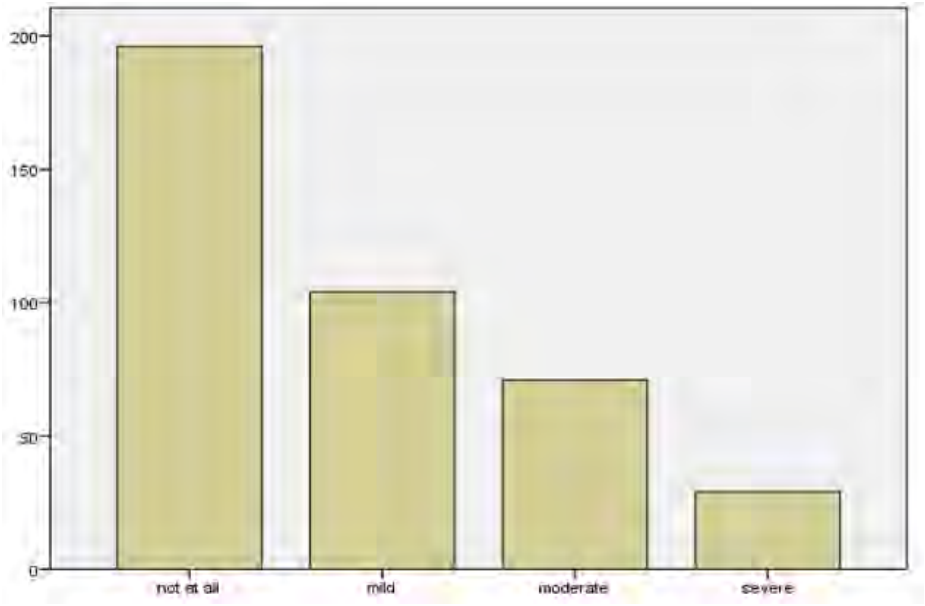


Figure 15: People feeling pain in your chest, almost like a heart attack

Table 15: People feeling pain in your chest, almost like a heart attack

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	196	49.0	49.0	49.0
mild	104	26.0	26.0	75.0
moderate	71	17.8	17.8	92.8
severe	29	7.3	7.3	100.0
Total	400	100.0	100.0	

Approximately 40% said “not at all” here and 34% said “mild”, while 20% said “moderate”. The 50 %(Approx.) who are responding positively to such bodily discomfort, are thus likely to have anxiety issues.

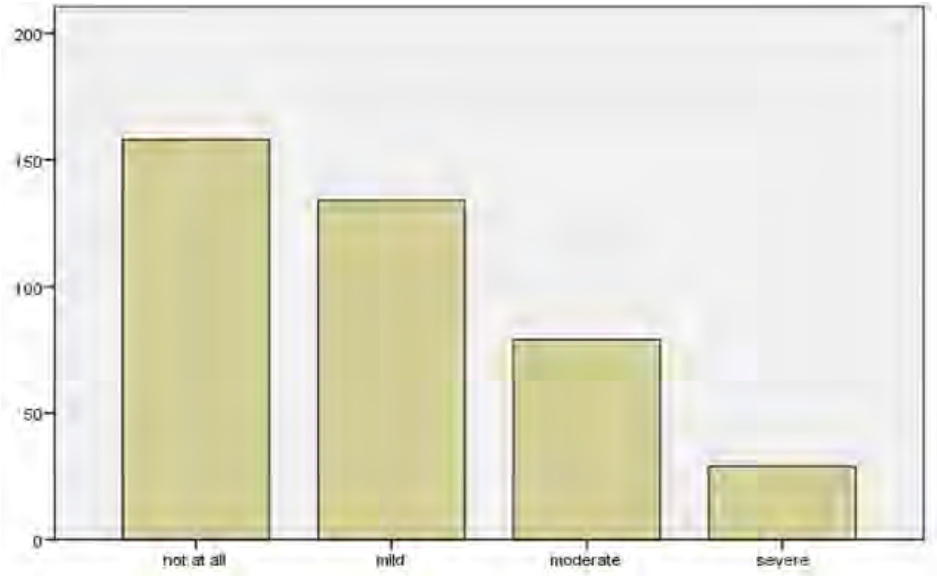


Figure 16: People feeling sick to their stomach, like they are going to throw up, or had diarrhea

Table 16: People feeling sick to their stomach, like they are going to throw up, or had diarrhea

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	158	39.5	39.5	39.5
mild	134	33.5	33.5	73.0
moderate	79	19.8	19.8	92.8
severe	29	7.3	7.3	100.0
Total	400	100.0	100.0	

When asked about dizziness, almost 42% said “not at all”, while a significant 33% said “mild”.

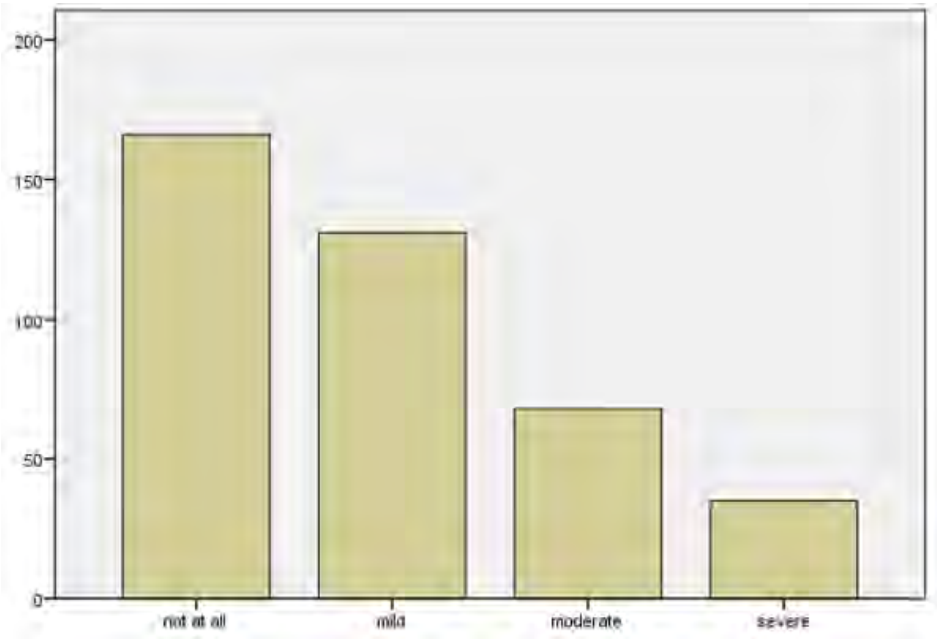


Figure 17: People feeling dizzy, experience sensation as if their head was spinning, or feel like they are going to faint

Table 17: People feeling dizzy, experience sensation as if their head was spinning, or feel like they are going to faint

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	166	41.5	41.5	41.5
mild	131	32.8	32.8	74.3
moderate	68	17.0	17.0	91.3
severe	35	8.8	8.8	100.0
Total	400	100.0	100.0	

About cold or hot flashes, 37% answered “not at all” while 35% said “mild”. 20% said “moderate”. Such percentages are inconclusive in nature because such flashes could be signs of other abnormalities or diseases too. But 30 people did say they have severe cold/hot flashes.

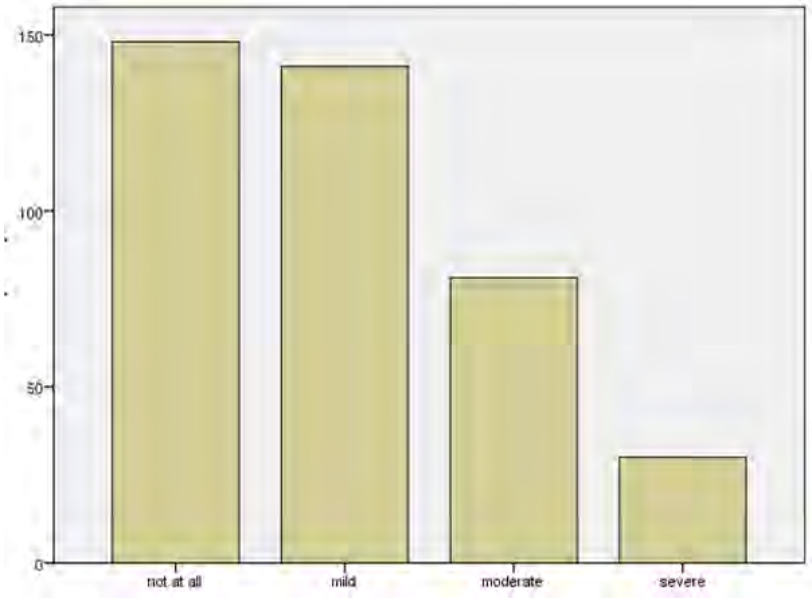


Figure 18: People having cold or hot flashes

Table 18: People having cold or hot flashes

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	148	37.0	37.0	37.0
mild	141	35.3	35.3	72.3
moderate	81	20.3	20.3	92.5
severe	30	7.5	7.5	100.0
Total	400	100.0	100.0	

About fear of losing control, 33% said "not at all", while 32% and 25% said "mild" and "moderate" respectively. This, again, may or may not at all be related to anxiety problems, although some 11% did have "severe" phases here, who could be the ultimate sufferers of nervous breakdowns.

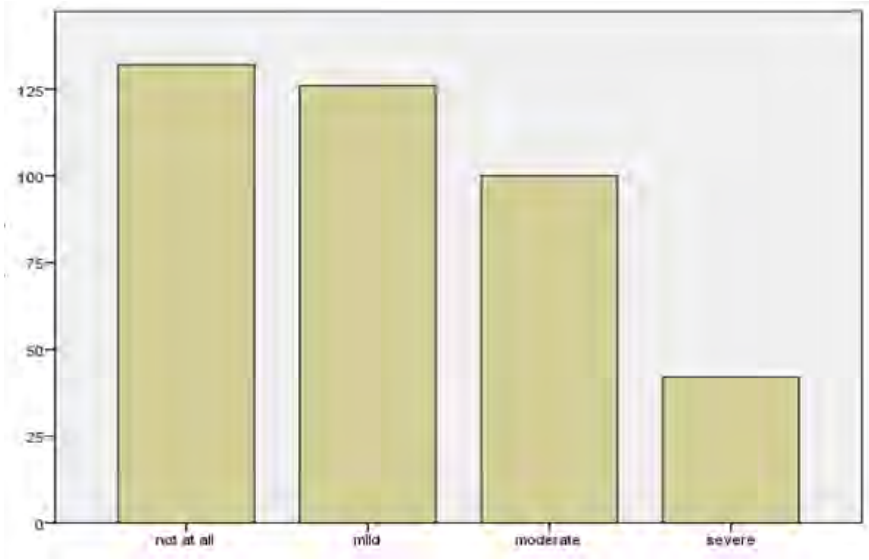


Figure 19: People scared that they would lose control

Table 19: People scared that they would lose control

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	132	33.0	33.0	33.0
mild	126	31.5	31.5	64.5
moderate	100	25.0	25.0	89.5
severe	42	10.5	10.5	100.0
Total	400	100.0	100.0	

This one has very similar percentages in different categories. 27% said "not at all", 34% said "mild" and 29% said "moderate". Such varied responses make it difficult to deduce a concluding a remark, so this variable may or not have any direct connection to anxiety. 11% said they "severely" felt sad, and these people might be the sufferers of depression/anxiety.

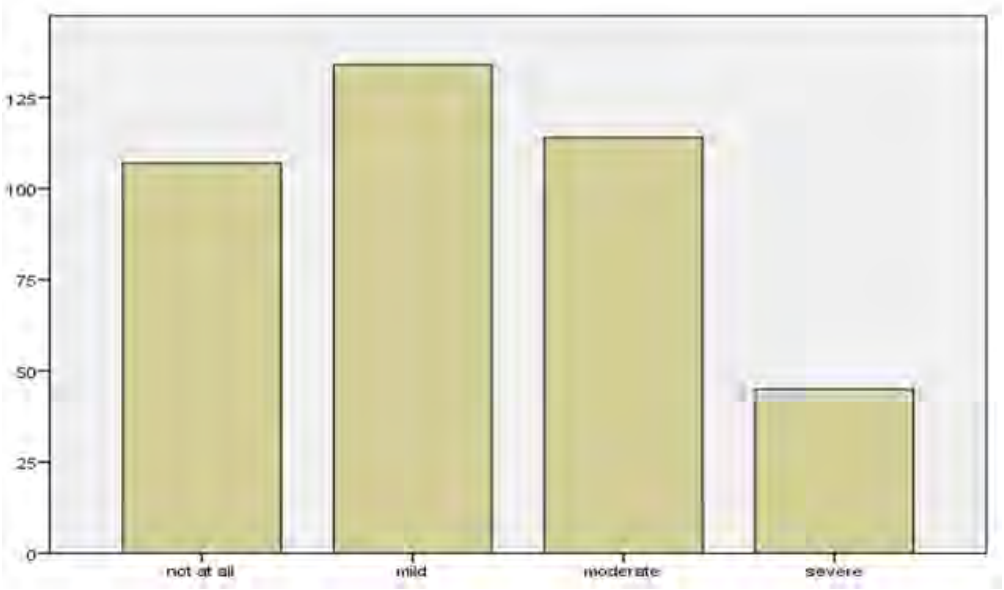


Figure 20: People feeling sad that they could not go on

Table 20: People feeling sad that they could not go on

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	107	26.8	26.8	26.8
mild	134	33.5	33.5	60.3
moderate	114	28.5	28.5	88.8
severe	45	11.3	11.3	100.0
Total	400	100.0	100.0	

33% said they did not stop having fun at all, while 31% and 27% said they 'mildly" and "moderately" did, in respective terms. This is again a mixed response, but the percentages responding positively to this question are probably patients of anxiety. The minority 10% may be prone to anxiety.

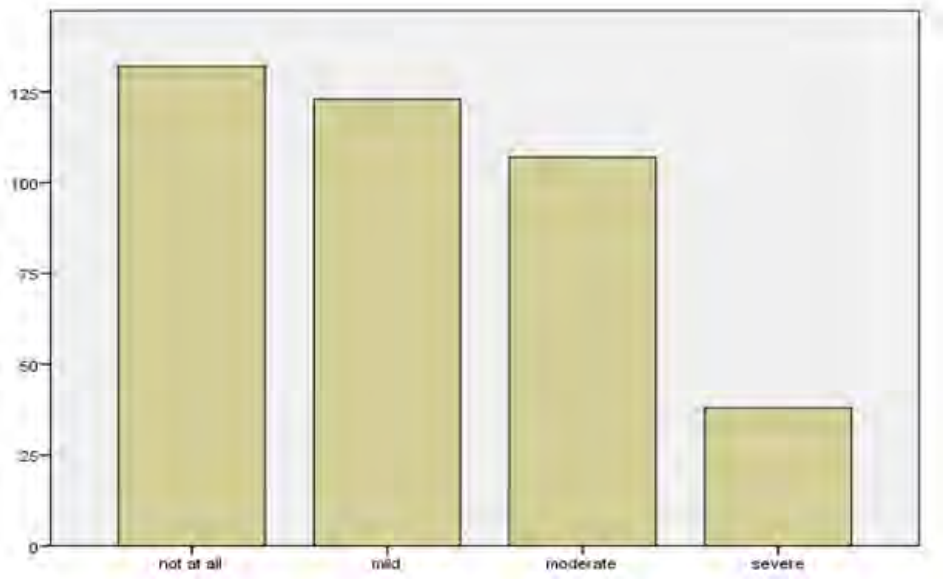


Table 21: People stopped having fun doing things that you used to enjoy

Table 21: People stopped having fun doing things that you used to enjoy

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	132	33.0	33.1	33.1
mild	122	30.5	30.6	63.7
moderate	107	26.8	26.8	90.5
severe	38	9.5	9.5	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

About losing/gaining weight, almost equal percentages answered “not at all” and “mild”. This is an inconclusive observation all over again, as weight changes might not necessarily signify anxiety issues. But 42 people who said “severe” might be having anxiety problems.

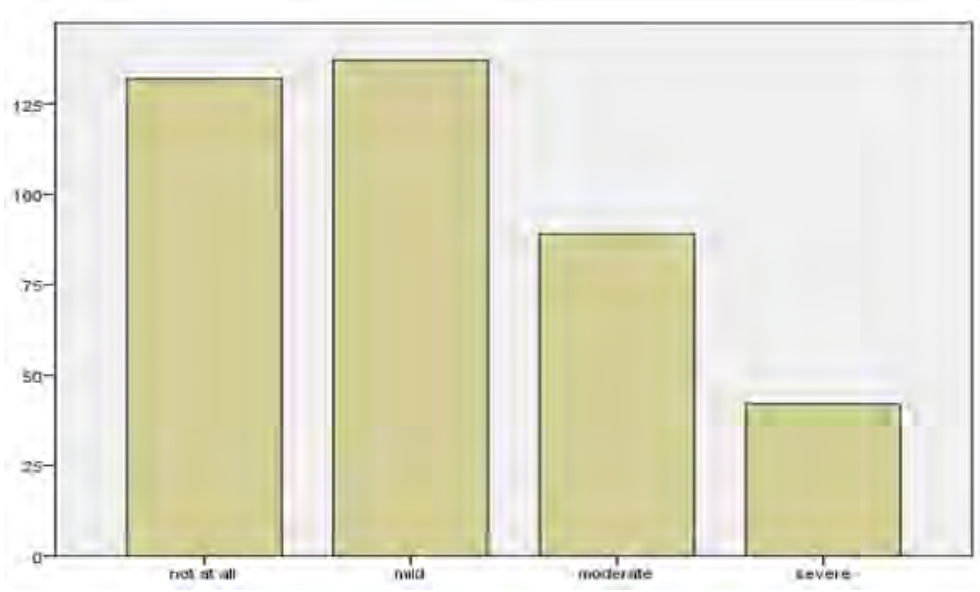


Figure 22: People lose or gain weight without trying to

Table 22: People lose or gain weight without trying to

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	132	33.0	33.0	33.0
mild	137	34.3	34.3	67.3
moderate	89	22.3	22.3	89.5
severe	42	10.5	10.5	100.0
Total	400	100.0	100.0	

38% said their appetite changed “mildly”, while 26% and 28% said “moderately” and not at all”, in respective terms. Just 8% said it changed severely, who could all be patients of anxiety. A mild overall appetite change may be just due to natural preferences.

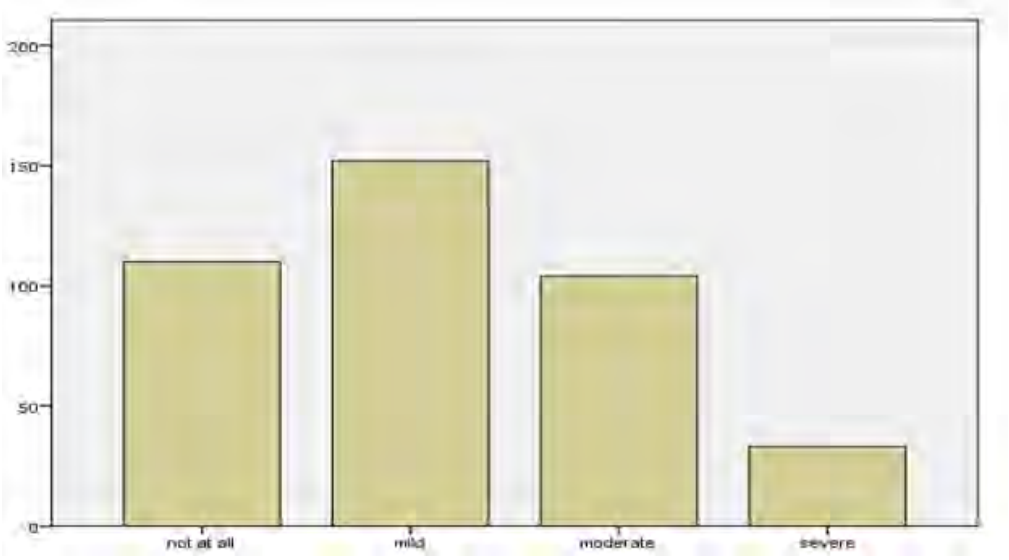


Figure 23: People having changing in appetite

Table 23: People having changing in appetite

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	110	27.5	27.6	27.6
mild	152	38.0	38.1	65.7
moderate	104	26.0	26.1	91.7
severe	33	8.3	8.3	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

Majority answered "mild" here, which is an unclear evidence to draw any conclusion. But the 34 people saying "severe" could be the ultimate sufferers.

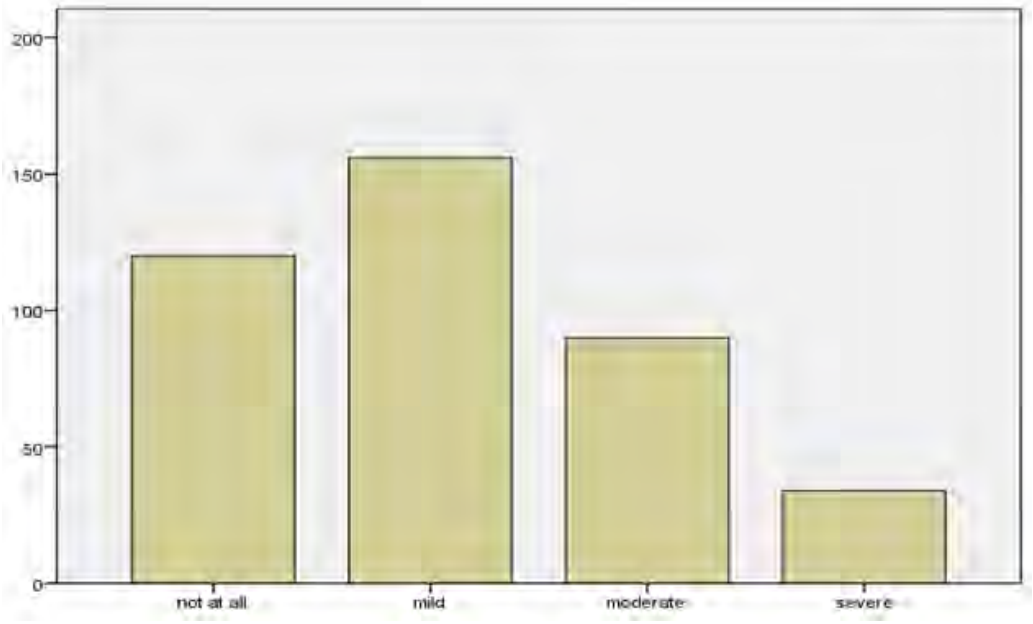


Figure 24: People slow down compared to their usual pace

Table 24: People slow down compared to their usual pace

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	120	30.0	30.0	30.0
mild	156	39.0	39.0	69.0
moderate	90	22.5	22.5	91.5
severe	34	8.5	8.5	100.0
Total	400	100.0	100.0	

36% were found to have answered “mild” here, while 26% and 25% answered “not at all” and “moderate” respectively. While the responses are spread all over and indicate no concrete conclusion or relevant exhaustion, 52 people (13%) complained of being “severely” exhausted. Anxiety could be a key reason for such people.

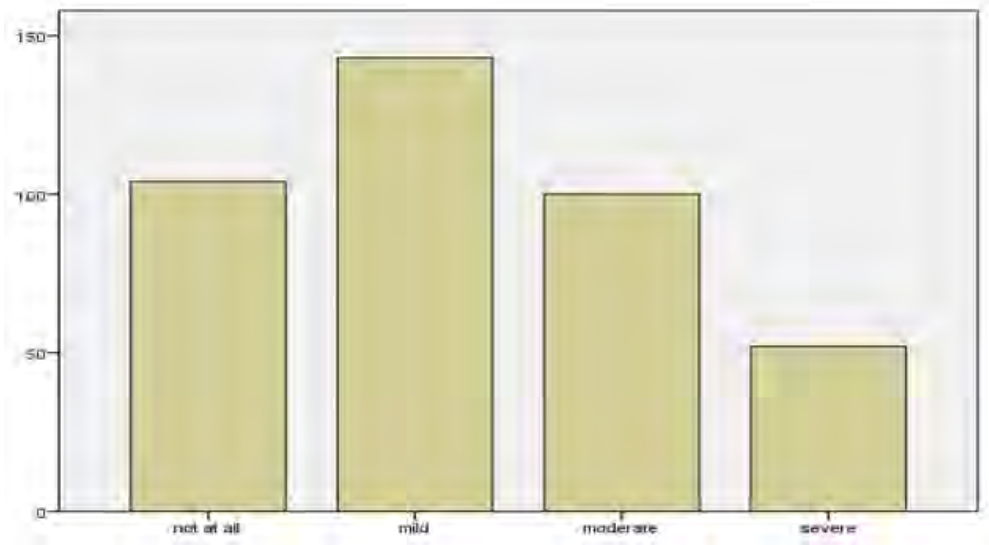


Figure 25: People feeling exhausted

Table 25: People feeling exhausted

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	104	26.0	26.1	26.1
mild	143	35.8	35.8	61.9
moderate	100	25.0	25.1	87.0
severe	52	13.0	13.0	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

"Mild" is the most frequent answer once again, with 35% responses. 30% and 23% people answered "not at all" and "moderate". So, the majority did not feel too worthless as such, although a lower 12% answered they faced "severe" worthlessness sign of depression.

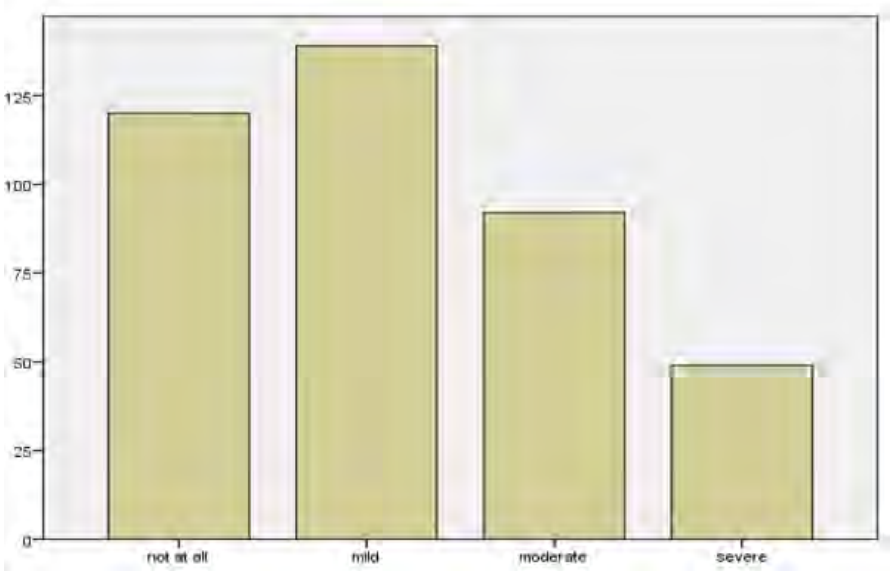


Figure 26: People feeling worthless or guilty

Table 26: People feeling worthless or guilty

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	120	30.0	30.0	30.0
mild	139	34.8	34.8	64.8
moderate	92	23.0	23.0	87.8
severe	49	12.3	12.3	100.0
Total	400	100.0	100.0	

When asked about whether they ever thought of taking their own life, 44% answered “not at all”. This is a relieving majority. But the fact that rest of the people considered this even “mildly” or “moderately” is alarming. 42 people (11% approx.) said “severe” which is a dangerous sign of fatal depression.

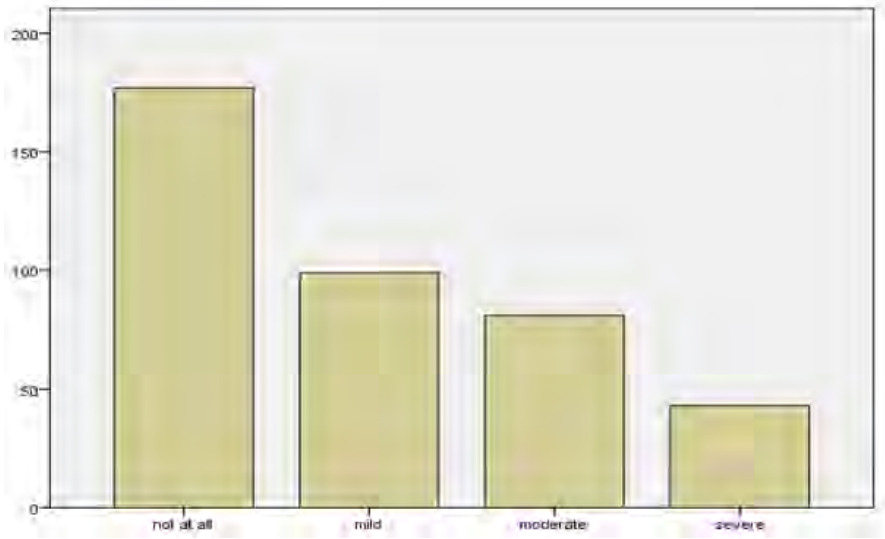


Figure 27: People having thought of taking their own life

Table 27: People having thought of taking their own life

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	177	44.3	44.3	44.3
mild	99	24.8	24.8	69.0
moderate	81	20.3	20.3	89.3
severe	43	10.8	10.8	100.0
Total	400	100.0	100.0	

31% said depression did not "at all" make functioning difficult. 32% said it mildly did and the rest said "moderate" to "severe". The ones answering "severe" are people who need to be treated immediately.

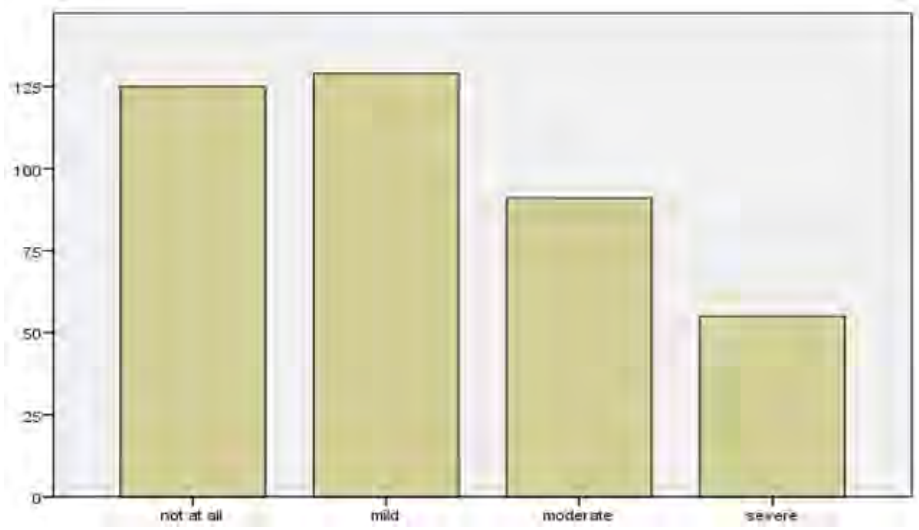


Figure 28: People feeling depressed make it difficult for function in their personal, social, or work life

Table 28: People feeling depressed make it difficult for function in their personal, social, or work life

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	125	31.3	31.3	31.3
mild	129	32.3	32.3	63.5
moderate	91	22.8	22.8	86.3
severe	55	13.8	13.8	100.0
Total	400	100.0	100.0	

When asked about unusually elevated moods, 154 out of 400 people the majority answered "mild". The rest had their responses scattered. But some 49 people answered "severe", which is worrisome.

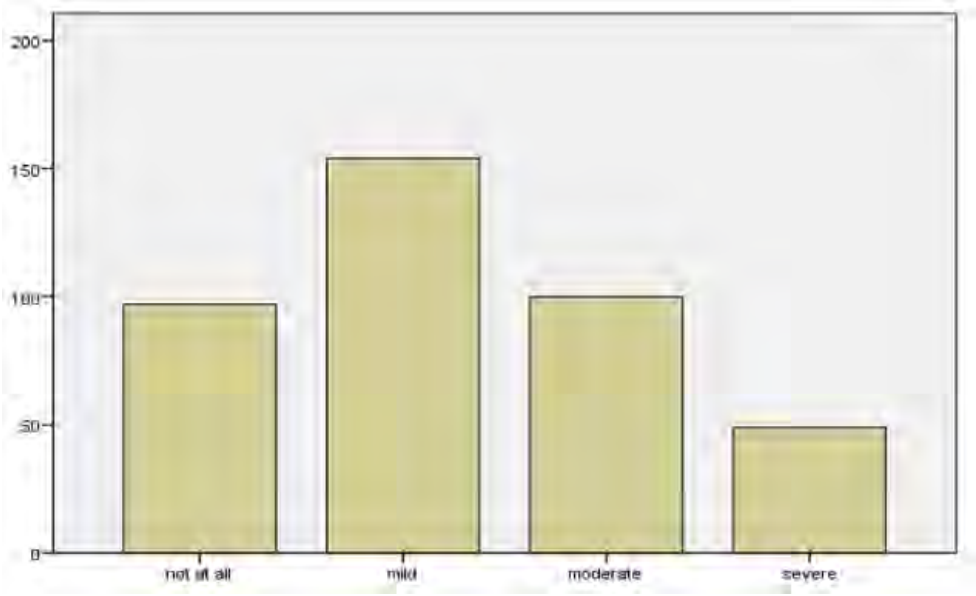


Figure 29: People experience an unusually elevated mood where they are extremely elated, energetic or irritable

Table 29: People experience an unusually elevated mood where they are extremely elated, energetic or irritable

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	97	24.3	24.3	24.3
mild	154	38.5	38.5	62.8
moderate	100	25.0	25.0	87.8
severe	49	12.3	12.3	100.0
Total	400	100.0	100.0	

Majority answers were “not at all”, “mild” and “moderate” but a small 13% had “severe” burst of confidence. This minority’s responses were well hinting at the presence of strong depression.

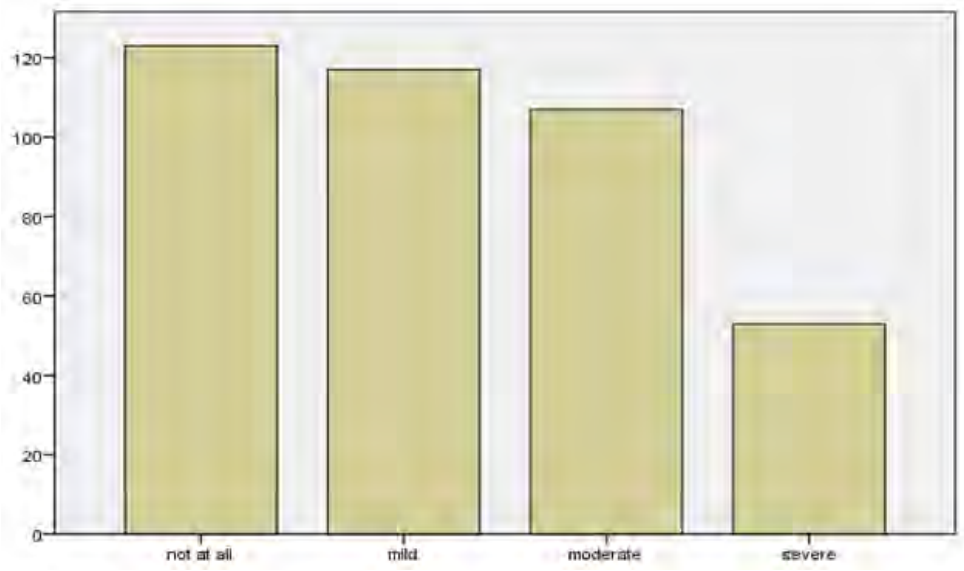


Figure 30: People having a sudden burst of confidence, or feel like they are better than anyone else

Table 30: People having a sudden burst of confidence, or feel like they are better than anyone else

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	123	30.8	30.8	30.8
mild	117	29.3	29.3	60.0
moderate	107	26.8	26.8	86.8
severe	53	13.3	13.3	100.0
Total	400	100.0	100.0	

34%, the majority responses, said “mild” sleep deprivation was there. Those having severe sleep deprivation, or insomnia, could be more prone to be under the claws of depression.

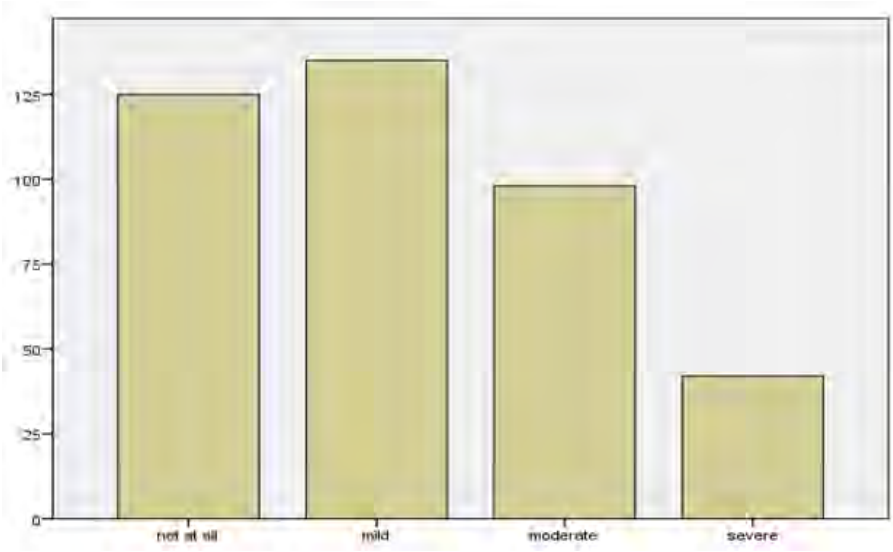


Figure 31: Sleep deprivation

Table 31: Sleep deprivation

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	125	31.3	31.3	31.3
mild	135	33.8	33.8	65.0
moderate	98	24.5	24.5	89.5
severe	41	10.3	10.3	99.8
				100.0
Total	400	100.0	100.0	

Most people answered "mild" here, like in the other questions. Some said moderate. A large 15% answered "severe" here, which could be interrelated to depression.

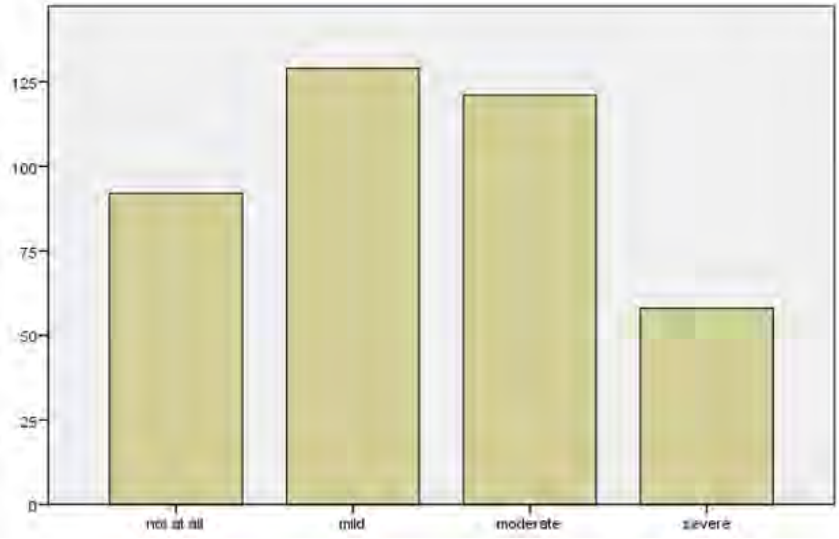


Figure 32: People's mind ever gets flooded with thoughts, and they talked faster than the usual

Table 32: People's mind ever gets flooded with thoughts, and they talked faster than the usual

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	92	23.0	23.0	23.0
mild	129	32.3	32.3	55.3
moderate	121	30.3	30.3	85.5
severe	58	14.5	14.5	100.0
Total	400	100.0	100.0	

Majority said “mild” again, with close percentages saying “moderate” or not at all”.58 people said they “severely” attempted multiple goals at once. This needs to be noted.

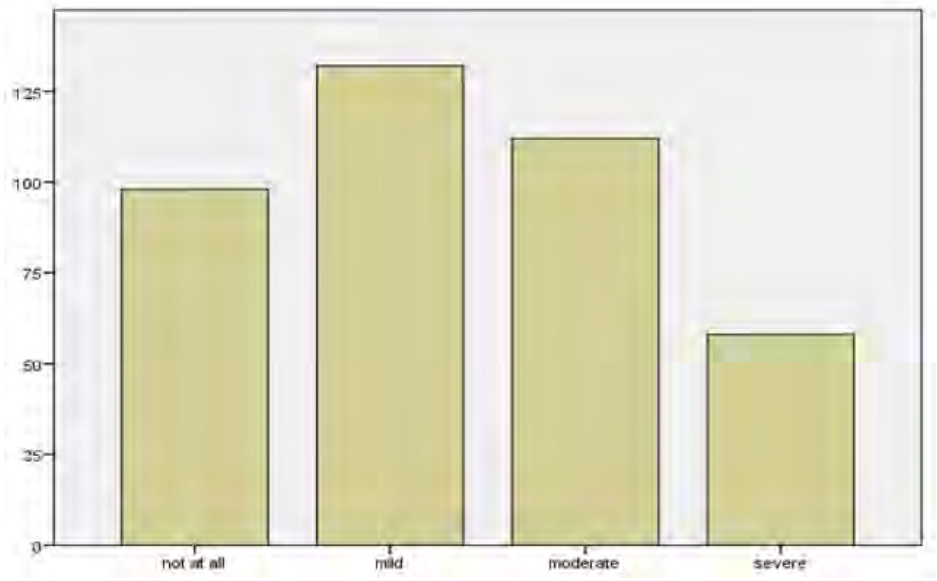


Figure 33: People tried to tackle multiple goals or activities at once

Table 33: People tried to tackle multiple goals or activities at once

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	97	24.3	24.4	24.4
mild	131	32.8	32.9	57.3
moderate	112	28.0	28.1	85.4
severe	58	14.5	14.6	100.0
Total	398	99.5	100.0	
Missing System	2	.5		
Total	400	100.0		

Most frequent responses are again “not at all”, “mild” and “moderate”, which might indicate daily life stress or mild anxiety issues. But the 13% who said “severe” were probably suffering from bad depression.

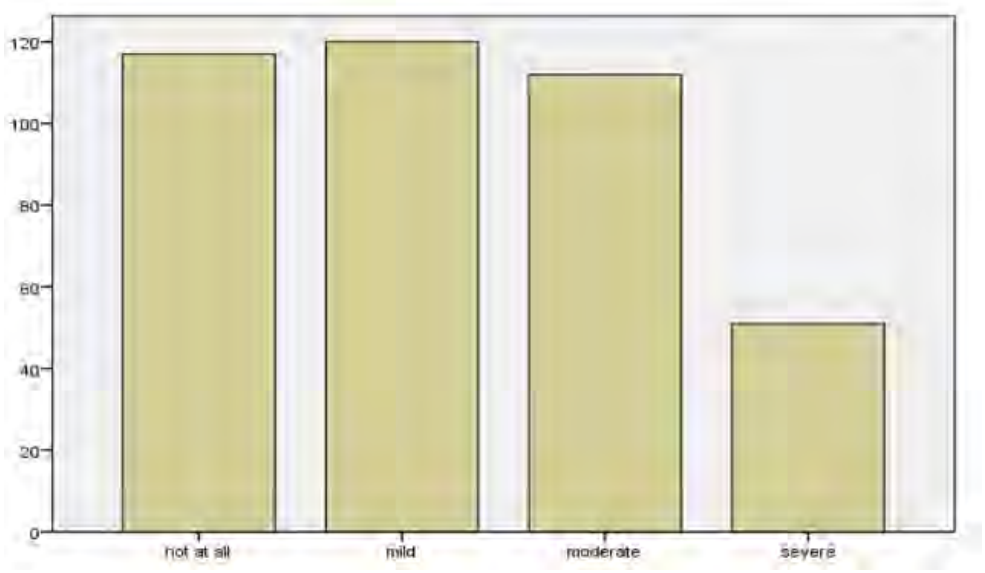


Figure 34: People ever experienced extreme mood swings from depression to elation without any apparent reason

Table 34: People ever experienced extreme mood swings from depression to elation without any apparent reason

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	117	29.3	29.3	29.3
mild	120	30.0	30.1	59.4
moderate	111	27.8	27.8	87.2
severe	51	12.8	12.8	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

39% said "not at all" to this question. The rest had mixed responses. But 8% people said "severe". So, while the majority faced no such violent attacks of depression, some people did experience such mood changes.

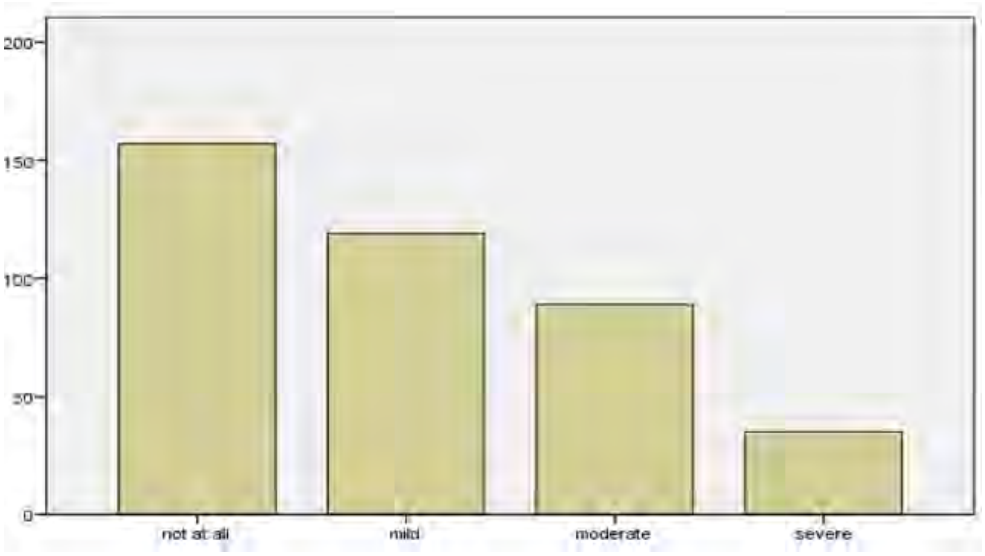


Figure 35: People's mood changes keep them from living their life to the fullest or required them to the hospitalized to prevent harm to themselves or others

Table 35: People's mood changes keep them from living their life to the fullest or required them to the hospitalized to prevent harm to themselves or others

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	156	39.0	39.4	39.4
mild	117	29.3	29.5	68.9
moderate	90	22.5	22.7	91.7
severe	33	8.3	8.3	100.0
Total	396	99.0	100.0	
Missing System	4	1.0		
Total	400	100.0		

29% said they "never" experienced panic attacks in last 6 months, while 21% said "less than a few times a week". Almost all options had several responses. But people saying "once or twice a day" or "several times a day" were the ones under risk of severe depression.

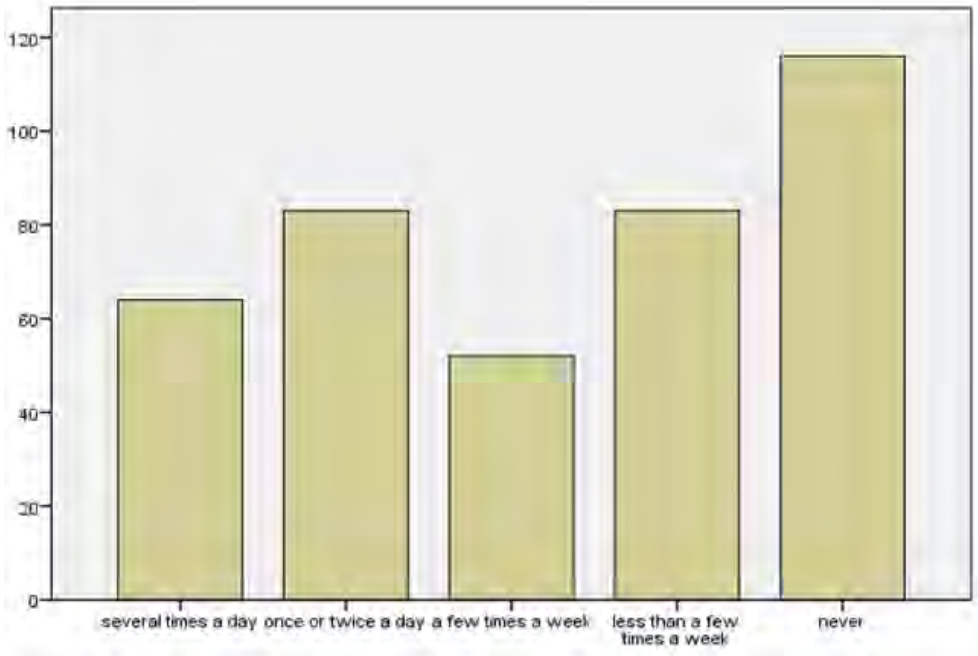


Figure 36: People frequently having experience panic attacks in the last 6 months

Table 36: People frequently having experience panic attacks in the last 6 months

	Frequency	Percent	Valid Percent	Cumulative Percent
several times a day	64	16.0	16.1	16.1
once or twice a day	83	20.8	20.9	36.9
a few times a week	52	13.0	13.1	50.0
less than a few times a week	83	20.8	20.9	70.9
never	116	29.0	29.1	100.0
Total	398	99.5	100.0	
Missing System	2	.5		
Total	400	100.0		

60% here said “yes”, while 39% said “no”. Those saying yes may not necessarily have any serious depression problems, as this could just be lack of courage or some mild nervousness. Any concrete conclusion cannot be stated in this case.

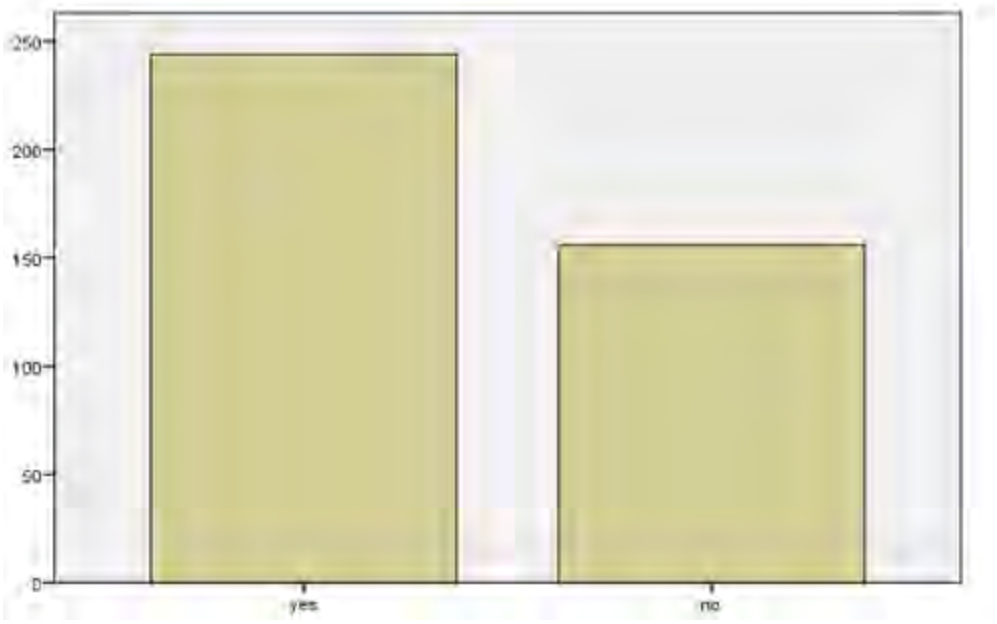


Figure 37: People purposely avoid situations or activities in which you might experience a panic attack

Table 37: People purposely avoid situations or activities in which you might experience a panic attack

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	241	60.3	60.6	60.6
no	157	39.3	39.4	100.0
Total	398	99.5	100.0	
Missing System	2	.5		
Total	400	100.0		

41% were direct victims of traumatic event, while 59% were not. Those victimized may have later developed anxiety, but this is still inconclusive with just this variable alone.

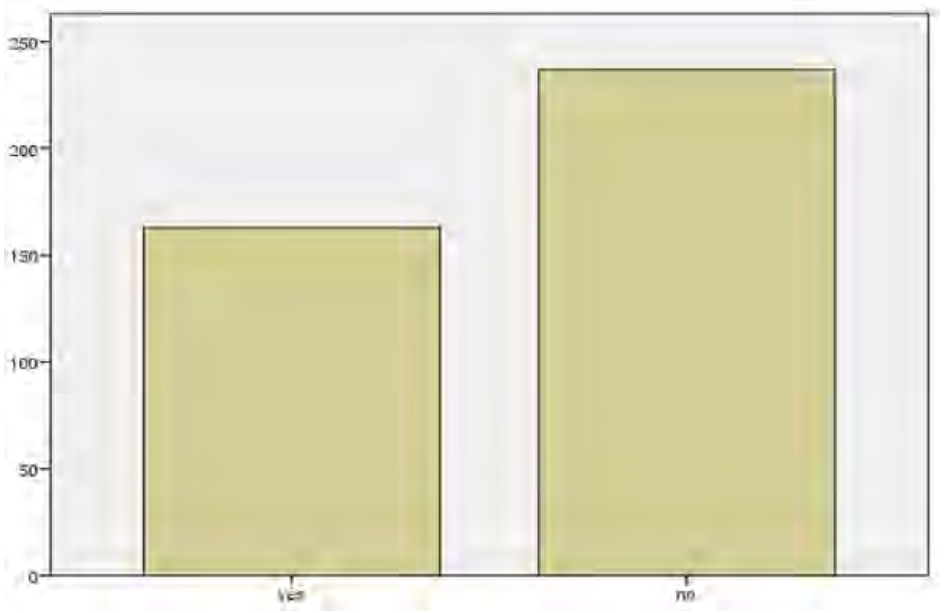


Figure 38: People who a direct victim of a traumatic event

Table 38: People who a direct victim of a traumatic event

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	163	40.8	40.8	40.8
no	237	59.3	59.3	100.0
Total	400	100.0	100.0	

48% said “yes” while the rest said “no”. Even though “no” was a majority, those who experienced such event could be more prone to anxiety attacks.

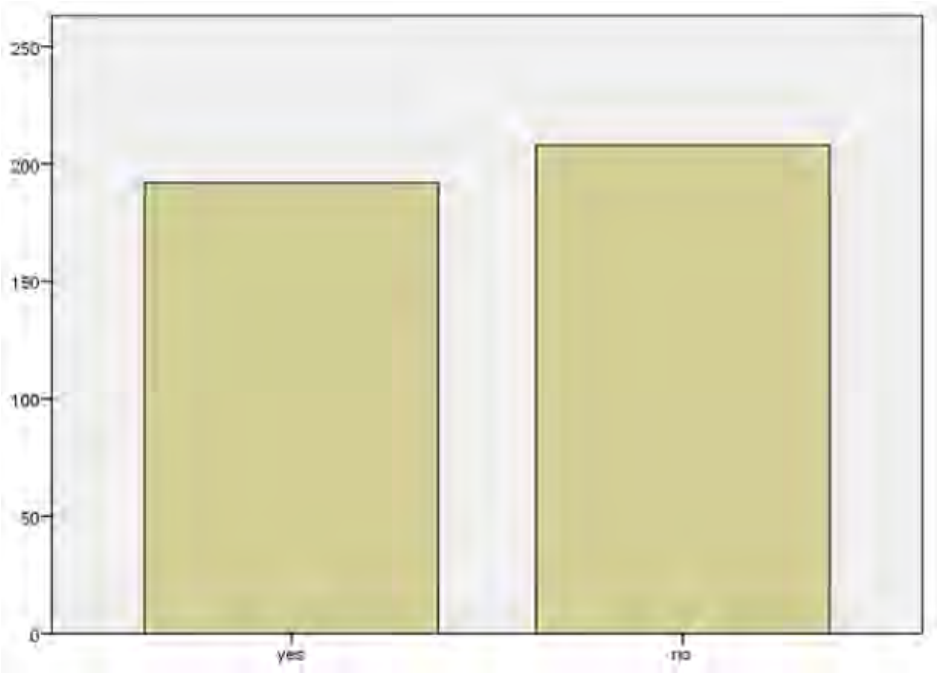


Figure 39: People witnessed a traumatic event in person

Table 39: People witnessed a traumatic event in person

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	193	48.3	48.3	48.3
no	207	51.8	51.8	100.0
Total	400	100.0	100.0	

70% said no. Most people were exposed to traumatic events (if any) as a result of anything else but their job. People saying "yes" could be having depression issues because of whatever trauma they have faced at work.

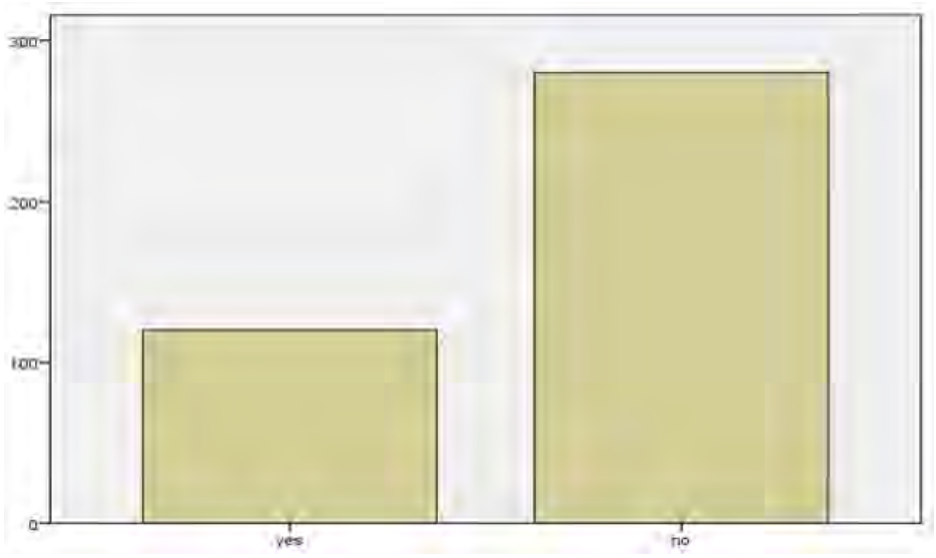


Figure 40: People exposed to the traumatic event as a result of your job

Table 40: People exposed to the traumatic event as a result of your job

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	120	30.0	30.0	30.0
no	280	70.0	70.0	100.0
Total	400	100.0	100.0	

54%, the majority said they were not haunted by any such flashbacks or nightmares. But the rest said "yes" and there might some among them, or all of them, who might be more vulnerable to depressive moods due to such flashbacks.

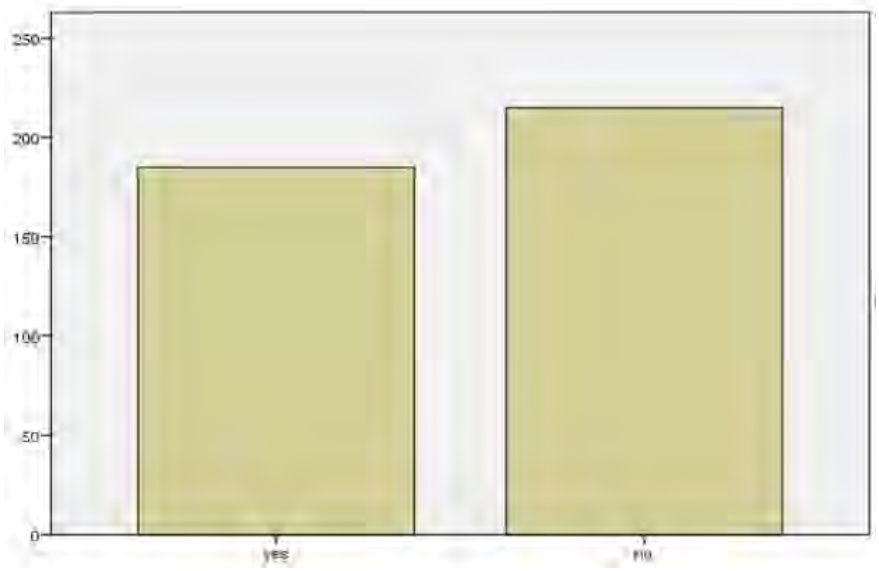


Figure 41: People are haunted by memories, flashbacks, or nightmares about the event

Table 41: People are haunted by memories, flashbacks, or nightmares about the event

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	186	46.5	46.5	46.5
no	214	53.5	53.5	100.0
Total	400	100.0	100.0	

53% said a "yes", while 47% said "no". The stark majority who said "yes" are clearly under depression issues, which have triggered more negative expectations in them.

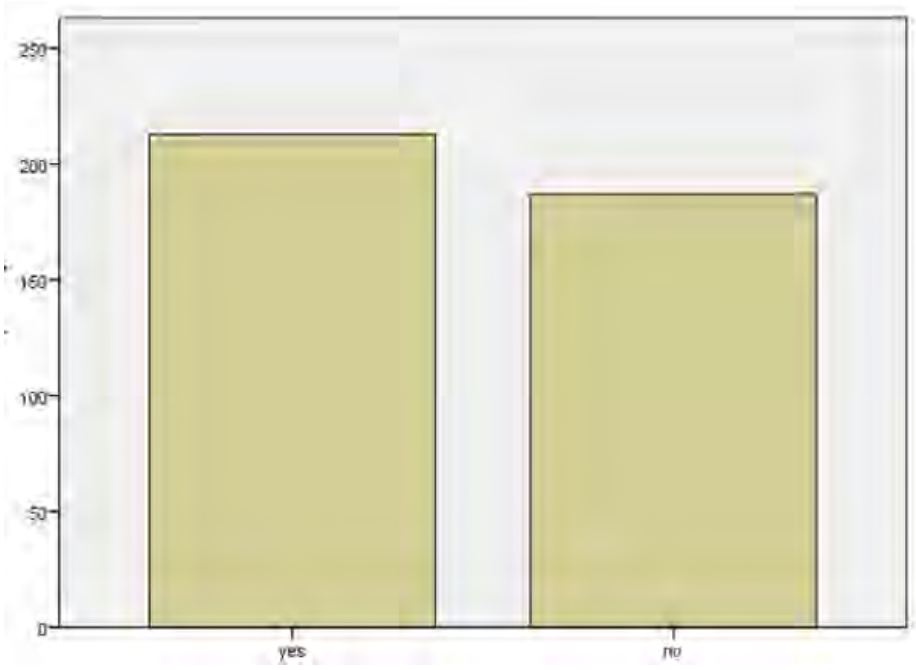


Figure 42: People lose trust in humanity andthemselves and begin expecting the worst of others and of situations

Table 42: People lose trust in humanity andthemselves and begin expecting the worst of others and of situations

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	213	53.3	53.3	53.3
no	187	46.8	46.8	100.0
Total	400	100.0	100.0	

Again, a large 56% said yes here. Blame games or piling up guilt are a sign of weak heart and more susceptibility to depression.

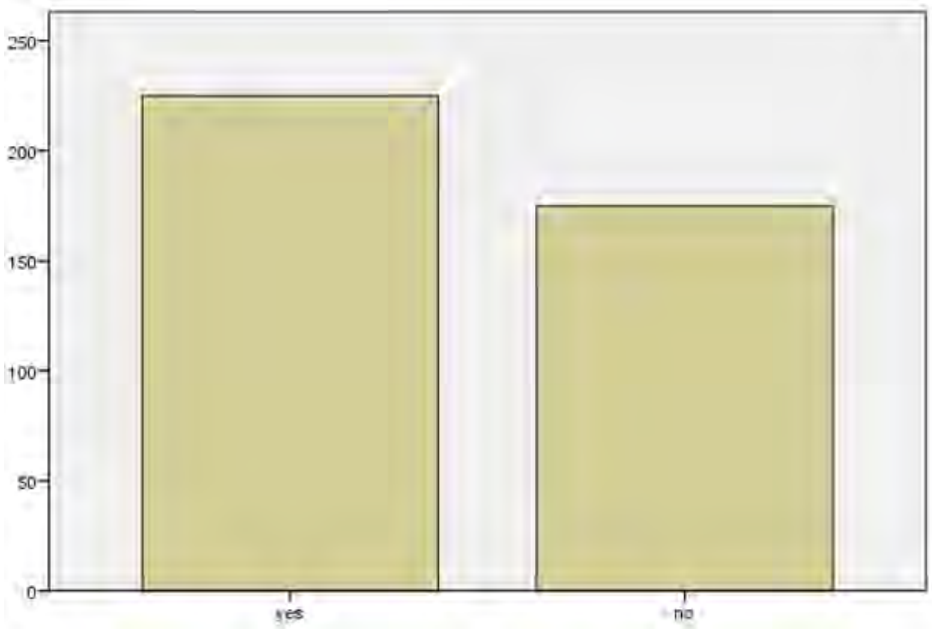


Figure 43: People frequently feel fear, guilt and shame or blame themselvesor others for what happened

Table 43: People frequently feel fear, guilt and shame or blame themselvesor others for what happened

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	225	56.3	56.3	56.3
no	175	43.8	43.8	100.0
Total	400	100.0	100.0	

48% said ‘yes’ while 50% said “no”. This 50-50 results cannot really be conclusive, but those saying yes might have faced some severe trauma compared to the rest, which led to them developing depression.

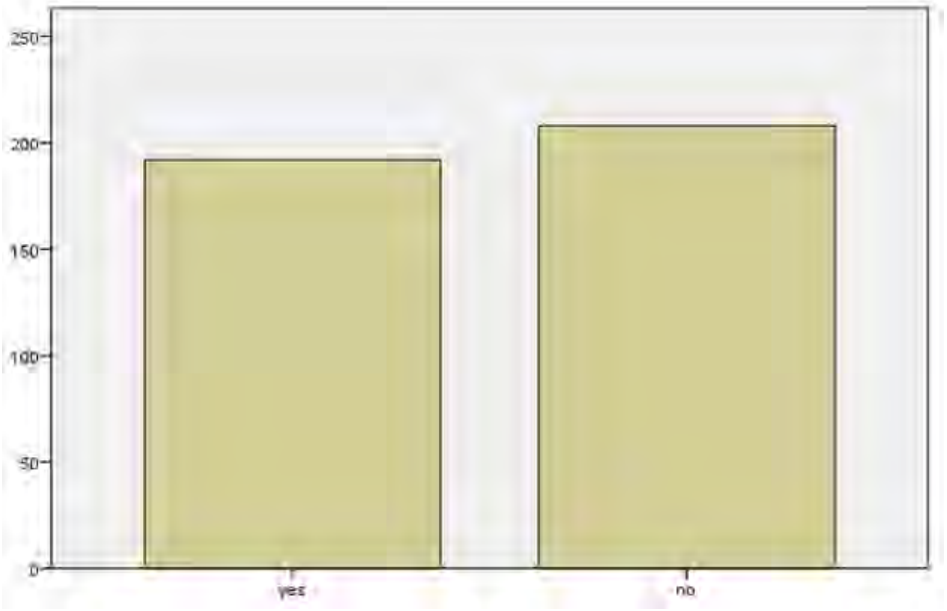


Figure 44: People lose interest in activities that they used to enjoy because of the traumatic event

Table 44: People lose interest in activities that they used to enjoy because of the traumatic event

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	192	48.0	48.0	48.0
no	208	52.0	52.0	100.0
Total	400	100.0	100.0	

This is again a 50-50 response, and hence any deduction might not be plausible. Some people are short-tempered just by nature, while others develop such irritability as a result of depression/anxiety.

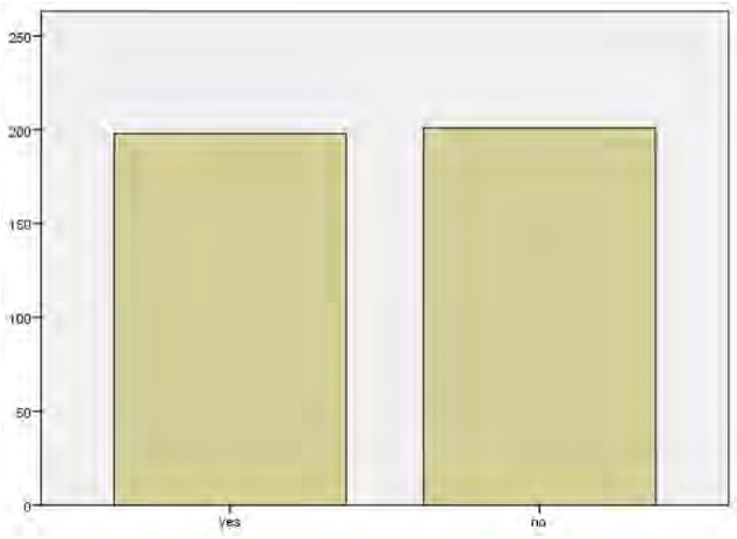


Figure 45: People become irritable or angry because of minor issues

Table 45: People become irritable or angry because of minor issues

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	198	49.5	49.6	49.6
no	201	50.3	50.4	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

66% said “yes” and the rest said “no”. No direct relation with depression can be made in this case this either. Getting tense is quite common and so this alone cannot hint at anxiety/depression.

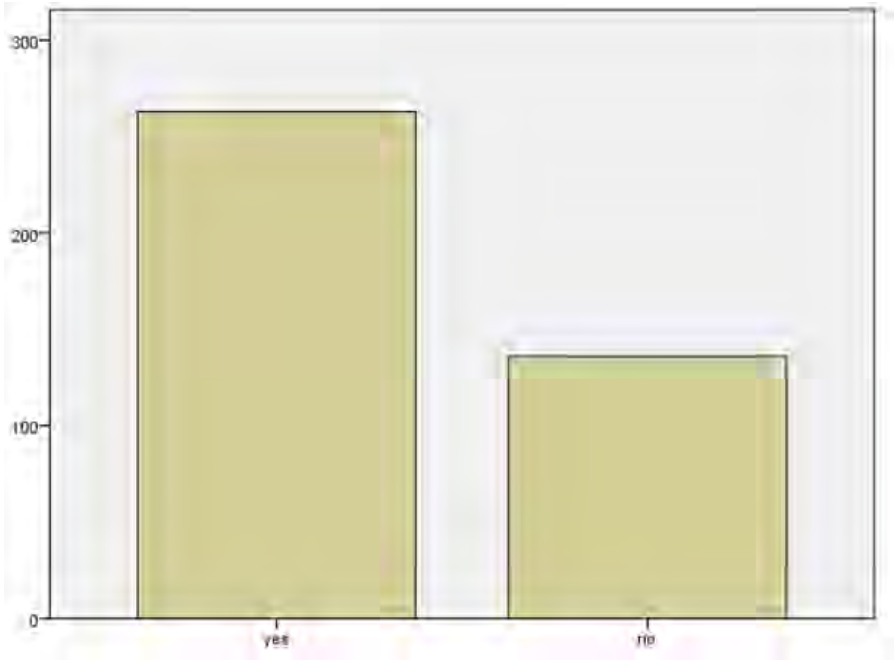


Figure 46: People become tense because of any issue

Table 46: People become tense because of any issue

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	263	65.8	65.9	65.9
no	136	34.0	34.1	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

Majority said “yes”. Lack of focus could be due to a lot of other distractions in one’s lifestyle, and may not hence be related to depression problems.

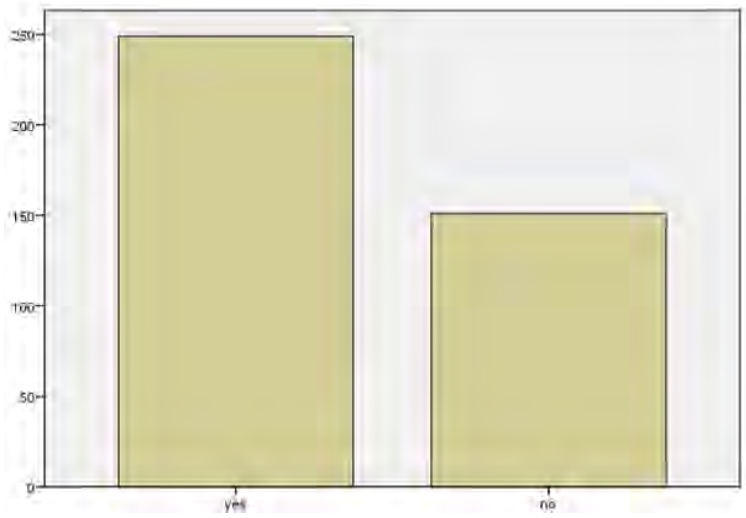


Figure 47: People having trouble focusing, concentrating or remembering things

Table 47: People having trouble focusing, concentrating or remembering things

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	249	62.3	62.3	62.3
no	151	37.8	37.8	100.0
Total	400	100.0	100.0	

"Yes" was the more frequent response, although 47% said "no". It is natural for any person, with or without depression, to avoid anything that reminds them of some trauma.

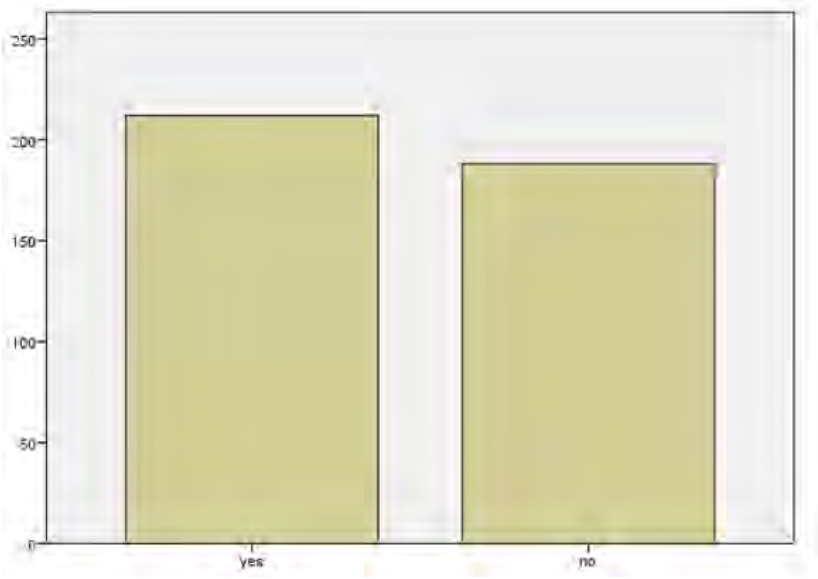


Figure 48: People avoid anything that reminds them of the event

Table 48: People avoid anything that reminds them of the event

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	212	53.0	53.0	53.0
no	188	47.0	47.0	100.0
Total	400	100.0	100.0	

53% people say 'yes" here while rest say "no". This again is inconclusive, because people may be afraid of happiness or connecting with people if they've had an unfortunate or unhappy past experience even just once. This alone cannot hint at depression, unless other variables are also taken into consideration.

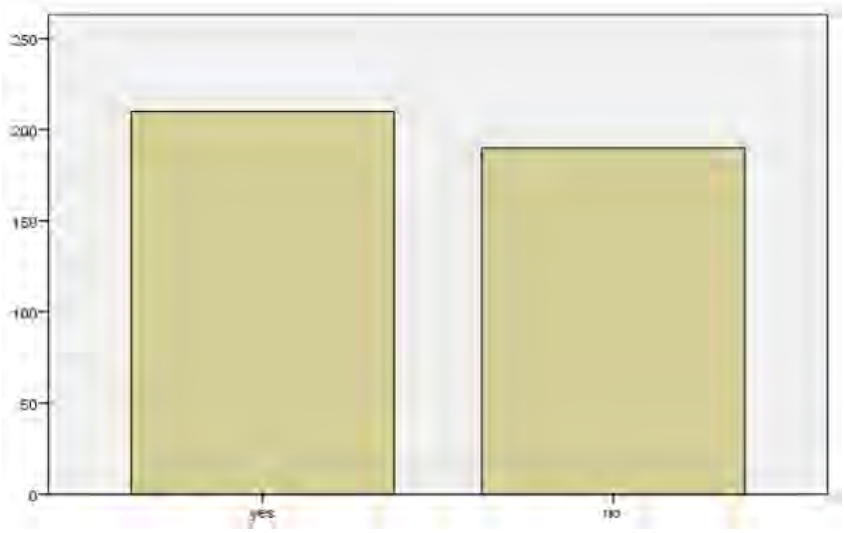


Figure 49: People unable to feel happiness, contentment, joy or love, or have had connecting with people

Table 49: People unable to feel happiness, contentment, joy or love, or have had trouble connecting with people

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	210	52.5	52.5	52.5
no	190	47.5	47.5	100.0
Total	400	100.0	100.0	

52% said no. But this is more of a 50-50 situation. Getting habituated or addicted to any distraction may not necessarily be a coping mechanism against trauma; a lot of other personal weaknesses or peer influences could be the driver.

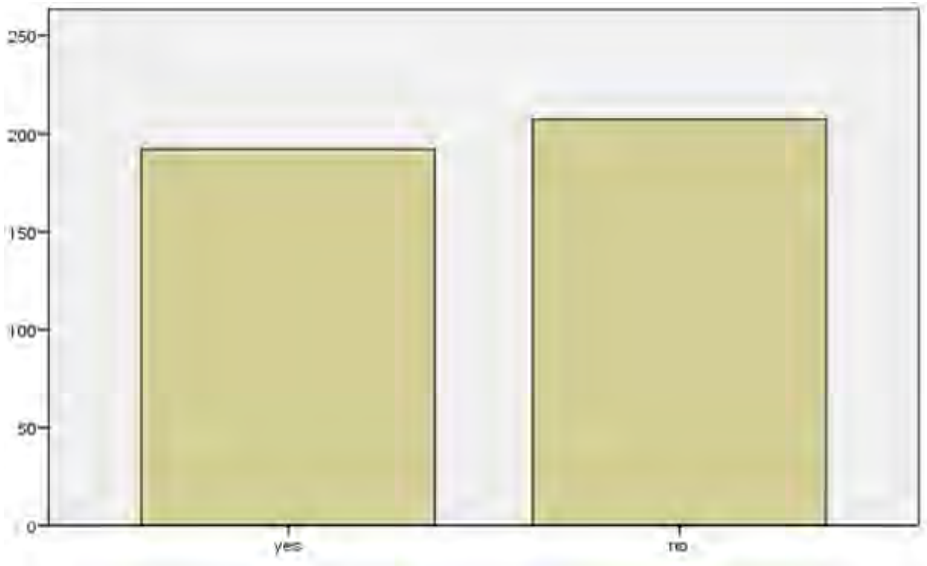


Figure 50: People trying to cut down on food, drink or any other distraction, but end up using it more or for longer than you intended to cope with trauma

Table 50: People trying to cut down on food, drink or any other distraction, but end up using it more or for longer than you intended to cope with trauma

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	192	48.0	48.1	48.1
no	207	51.8	51.9	100.0
Total	399	99.8	100.0	
Missing System	1	.3		
Total	400	100.0		

39% said “not at all”, but 27% said only slightly. The rest had other responses. Feeling empty inside could very much be a sign of depression.

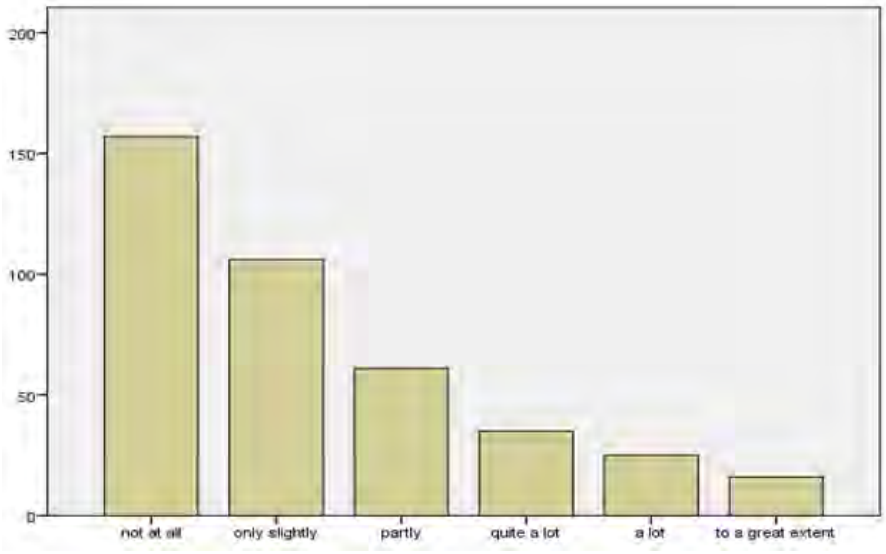


Figure 51: People feeling empty- more dead than alive

Table 51: People feeling empty- more dead than alive

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	157	39.3	39.3	39.3
only slightly	106	26.5	26.5	65.8
partly	61	15.3	15.3	81.0
quite a lot	35	8.8	8.8	89.8
a lot	25	6.3	6.3	96.0
to a great extent	16	4.0	4.0	100.0
Total	400	100.0	100.0	

45%, the majority, said “not at all”. Rest of the people said “only slight” or “partly”. A few people, worryingly enough, said they wondered about committing suicide “to a great extent”. The 15-17% who gave such strong responses here about thoughts on committing suicide, are definitely under mild to severe depression, whether temporary or a long-term one.

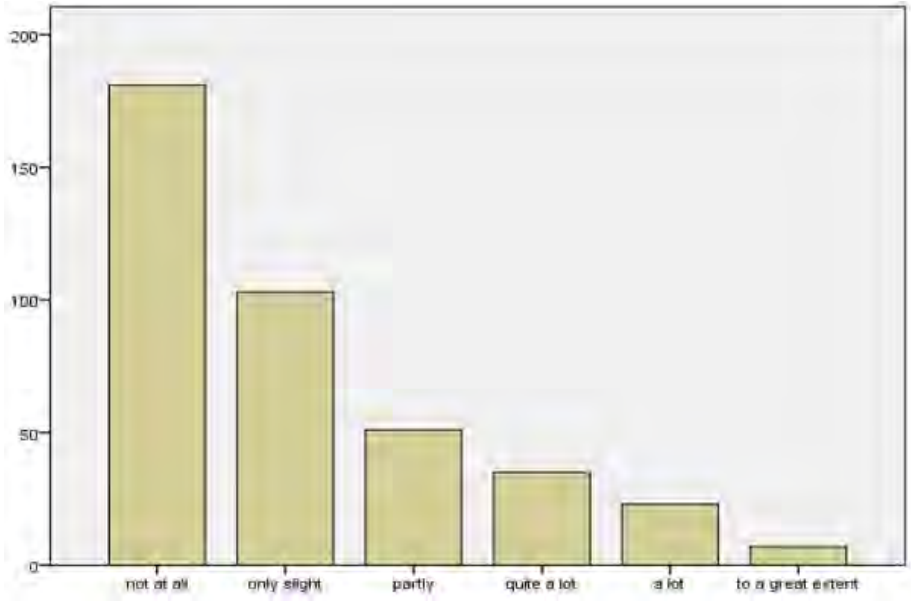


Figure 52: People wonder how they could commit a suicide

Table 52: People wonder how they could commit a suicide

	Frequency	Percent	Valid Percent	Cumulative Percent
not at all	181	45.3	45.3	45.3
only slight	103	25.8	25.8	71.0
partly	51	12.8	12.8	83.8
quite a lot	35	8.8	8.8	92.5
a lot	23	5.8	5.8	98.3
to a great extent	7	1.8	1.8	100.0
Total	400	100.0	100.0	

6. Conclusion

After analyzing the responses to the questions, the conclusion that can be drawn for certain is that there are roughly 10-15% of the respondents who are suffering severely from depression. While most of the questions had "mild" or "moderate" as the most frequent answers, this certain percentage of people seemed to be highly prone to all the above-mentioned signs of depression. Some variables gave ambiguous results, since they could not alone be judged to be causes or results of depression (e.g. distraction, tension, avoiding trauma, fear of connecting to people etc.) unless considered together as a whole. The most alarming responses were frequent panic attacks, bodily discomfort, sleep deprivation, frequent thoughts of suicide, attempts of self-harm/harm to others, inability to see the positive side of any situation, etc. These are definitely signs of moderate to very severe depression/anxiety, and such people must be treated medically or consulted by psychologists as soon as possible. Depression is a feeling of severe dependency and dejection, and is more than just feeling low. It is a serious mental health condition that could affect both physical and mental health of the person. It tends to affect the person in a way that makes life difficult to be managed from day to day. Therefore, those who have any sign of depression must be treated immediately and awareness is of pressing importance that requires immediate attention and action.

7. Recommendation:

Depression is a disorder that needs to be addressed at the initial stage to ensure correct diagnosis and treatment.

The following preventive measures can be recommended for college students.

1. A student health committee should be formed with a mental health professional (psychiatrist / clinical psychologist) and must conduct workshop and seminar for teachers regularly updating the activities of the committee. Mentors of students must also be in close contact with student counseling center so that they can refer the students at an early stage and also get feedback from counseling center.
2. Set up of student counseling centers in all colleges with the help of health professional and counseling units. This will identify and help students with psychological issues.
3. There should be regular seminars and workshops for students on assertive training and communication skills, stress management and time management.
4. Creating awareness among students with the help of mentors.
5. Maintaining a healthy environment, both mentally and physically.
6. Health professionals & services must be available 24/7 to help with anyone facing depression.

8. Reference:

Andrews, J. J., &Beehr, T. A. (n.d.). Academic Stress: Factors Contributing to Stress and Test Anxiety Among College Students. PsycEXTRA Dataset. doi:10.1037/e566962012-551

Bhasin, S. K., Sharma, R., & Saini, N. K. (2009). Depression, anxiety and stress among adolescent students belonging to affluent families: A school-based study. *The Indian Journal of Pediatrics,77*(2), 161-165. doi:10.1007/s12098-009-0260-5

Beck, A. T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal intention: The Scale for Suicide Ideation. *Journal of Consulting and Clinical Psychology,47*(2), 343-352. doi:10.1037//0022-006x.47.2.343

Classification of suicidal behaviors: I. Quantifying intent and medical lethality. (1975). *American Journal of Psychiatry,132*(3), 285-287. doi:10.1176/ajp.132.3.285

Evans, G. W. (2003). The Built Environment and Mental Health

Giasuddin, N. A., Chowdhury, N. F., Hashimoto, N., Fujisawa, D., &Waheed, S. (2010). Pathways to psychiatric care in Bangladesh. Social Psychiatry and Psychiatric Epidemiology,47(1), 129-136. doi:10.1007/s00127-010-0315-y

Heidari, L., Younger, M., Chandler, G., Gooch, J., & Schramm, P. (2016). Integrating Health into Buildings of the Future. Journal of Solar Energy Engineering,139(1), 010802. doi:10.1115/1.4035061

Hossain, M. D., Ahmed, H. U., Chowdhury, W. A., Niessen, L. W., &Alam, D. S. (2014). Mental disorders in Bangladesh: a systematic review. BMC Psychiatry,14(1). doi:10.1186/s12888-014-0216-9

Hoare, E., Milton, K., Foster, C., & Allender, S. (2017). Depression, psychological distress and Internet use among community-based Australian adolescents: a cross-sectional study. *BMC Public Health,17*(1). doi:10.1186/s12889-017-4272-1

Islam, A. (2015). Mental Health and the Health System in Bangladesh: Situation Analysis of a Neglected Domain. American Journal of Psychiatry and Neuroscience,3(4), 57. doi:10.11648/j.ajpn.20150304.11

Nelson, S. L. (2012). Major Depressive Disorder: Overview, Treatment and Recurrence Prevention

Oquendo, M. A., Currier, D., & Mann, J. J. (2006). Prospective studies of suicidal behavior in major depressive and bipolar disorders: what is the evidence for predictive risk factors?

Rihmer, Z., Gonda, X., Rihmer, A., &Fountoulakis, K. N. (2010). Suicidal and violent behaviour in mood disorders: A major public health problem. A review for the clinician. International Journal of Psychiatry in Clinical Practice,14(2), 88-94. doi:10.3109/13651501003624712

U S Food and Drug Administration Home Page. Retrieved January 22, 2017, from https://www.fda.gov/

Venkatarao, E., Iqbal, S., & Gupta, S. (2015). Stress, anxiety & depression among medical undergraduate students & their socio-demographic correlates. *Indian Journal of Medical Research,141*(3), 354. Doi:10.4103/0971-5916.156571

Zalsman, G., Braun, M., Arendt, M., Grunebaum, M. F., Sher, L., Burke, A. K., . . .Oquendo, M. A. (2006). A comparison of the medical lethality of suicide attempts in bipolar and major depressive disorders. Bipolar Disorders,8(5p2), 558-565. doi:10.1111/j.1399-5618.2006.00381.x