# DETERMINANTS OF DEPRESSION AMONG UNDEGRADUATES STUDENTS OF A TERTIARY INSTITUTION IN IBADAN METROPOLIS

BY

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# CERTIFICATION

This is to certify that Davies Moyosore Samuel carried out this work in the Department of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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## DEDICATION

This dissertation is dedicated to the Almighty God, who made the project possible from the onset to completion.

# ABSTRACT

With an estimated global prevalence of 3.4%, the World Health organization (WHO) has found depression to be a common illness which is the leading cause of disability around the world. Depression among undergraduate students is becoming increasingly common in universities with previous prevalence of 7.0% for severe depression and 25.2% for moderate depression. This research carried out among undergraduates of the University of Ibadan aimed at determining the prevalence of depression, assessing knowledge of depression among the students, determining association between knowledge of depression and severity of depression and also determining factors associated with depression.

The study was carried out in the University of Ibadan, in Oyo state, A cross sectional quantitative approach was used in carrying out this research with a total of four hundred and one respondents with which respondents were selected using multi stage sampling. Students who were resident on campus were chosen to be part of the study while distance learning students and students who didn't consent to the study were exempted from the study. A pretested self-administered questionnaire was used to collect data from the students as the questionnaire was divided into four sections in which some of the instruments used were standard instruments which were scored used to input data into the statistical software used for analysis. Informed consent was sought from participants as they were assured of withdrawing from the study at any time without consequences.

With a sample size of 401 and a response rate of 85%, majority of the students were found to have good knowledge of depression with 82.7% of the student being able to tell what symptoms exists in depressed persons and causes of depression , while `17.3 % of students have poor knowledge on recognizing depressive symptoms and causes .With a prevalence rate of 57.8% for moderate depression and 4.9% severe depression, this study found association between gender with 4.602 odds ratio of female to develop depression (C.I=1.073-7.629, P=0.035), parents of students who were widows/widower were found to be significantly associated with depression with a O.R-3.319(C.I=1.45-3.802;P=0.002) death of loved one has an O.R of 2.036 (C.I=1.004-2.97,P=0.004) to cause depression Social factors like low social support has a 2.917 likelihood to cause depression in students (C.I-1.309-3.501, P=0.009) as well as those who attend religious

activities 1-2 times have a 4.275 risk of developing depression than those who attend religious activities more times (C.I=1.98-7.04,P=0.197) but no significant association was found . Health factors such as alcohol use was found to be a determinant of depression with a 3.787 risk of those who take alcohol to develop depression those who do not take alcohol (C.I=1.753-5.402, P=0.011). Likewise poor sleep pattern which has been found to mediate between pain like traumatic experiences and depression was found to have a 2.893 risk of causing depression in students (C.I=1.439-5.815; P=0.003)

This study has shown that gender, widow/widower  as the marital status of parents, low social support, traumatic experiences such as death of loved one   alcohol use, and sleep pattern are determinants of depression, which have been observed in other studies that shows significant associations between these factors and depression. Interventions advised include encouragement of physical activities to enhance social connectedness, public health education to reduce or stop substance abuse by these depressed persons are a part of the recommendations on reducing prevalence of depression and enhancing knowledge of depression.


**KEYWORDS:** *Depression, Prevalence, Undergraduates, Intervention*

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# LIST OF ABBREVIATIONS

APA        -        American psychiatric association

DMDD        -        Disruptive mood deregulation disorder

DSM        -        Diagnosis Statistical manual

HICs        -        High income countries

LGAs        -        Local government areas

MDD        -        Major depressive disorder

NIH        -        National institute of health

PTSD        -        Post-traumatic stress disorder

WHO        -        World health organization

YLD        -        Years lived with Disability

# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND OF THE STUDY

Depression is defined as an aggregate of specific symptoms with associated impairment. It is a common illness worldwide, and more than 300 million people are affected globally (WHO, 2019). In 2018, the estimated global prevalence was 3.4% (Ritchie and Roser, 2018). Depression is distinct from usual mood fluctuations and short-lived emotional responses to challenges in everyday life. It is identified as one of the four major diseases in the world, which is also considered as the most common cause of disability from disease (Sarokhani et al, 2013). It is characterized by the presence of sad, empty or irritable mood, partnered by somatic and cognitive changes that significantly affect the individual's capacity to function (American Psychiatric Association, 2013). Depression has distinguishable effect upon eating habits, sleeping patterns and thinking patterns of an individuals. Thus, depression can cause interference in daily life activities (Aghakani et al, 2011).

In a cross-national comparative study, in some high income countries (HICs), Lifetime prevalence estimates of mild depressive episodes vary from 1.5% to 19.0%, with the midpoints at 9.2 %( Kesler and Bromet, 2013). In Africa, the prevalence varying by its regions, 5.9% depression among females in the African Region ,with prevalence in men and women varying between 4.9% and 5.9% respectively (WHO, 2017).

The WHO reports that depression is the leading cause of disability worldwide, and a major contributor to the overall global burden of disease. Depressive disorders led to a global total of over 50 million Years Lived with Disability (YLD) in 2015. Additionally, 80% of this non-fatal

disease burden occurred in low- and middle-income countries. Especially when long-lasting and with moderate or severe potency, depression may become a serious health condition.

A recent review on the prevalence of depression among University Students found that reported prevalence rates ranged from 10% to 85%, with a weighted mean prevalence of 30.6% (Ibrahim et al 2013). It is suggested that University Students experience rates of depression that are substantially higher than those found in the general population (Ibrahim et al., 2013). In Africa, among Egyptian university students 37% scored above the threshold for moderate depression (Ibrahim et al). Ethiopian university students showed 23.6% symptoms of depression (Terasaki et al, 2009).

According to World Health Organization,(WHO) there are about 322 million cases of depressive disorders in the world, In the African region, the females have a prevalence of 5.9% and males with a prevalence of 4.9%. Nigeria has about over 7million cases with a prevalence of 3.9%, depression is becoming prevalent even among youths and university students between ages 20-29.

Therefore the purpose of this research study is to determine the prevalence of depression as well as identify risk factors for depression and depressive symptoms among undergraduate students.

**1.2 PROBLEM STATEMENT**

Globally, in 2017, studies have shown that 7.3% of young adults are reported to experience two or more symptoms of depression in the past 30 days and 5.5% of adults aged 25-29 years also having depressive symptoms in the last 30 days, which was found to have increased from initial prevalence of 4.4 and 4.6%. In high income countries like Canada, 9.6% were found to have depressive symptoms (Kesler and Bromer, 2013) with which Students might emerge with depressive disorder which is due to academic stressors, such as tests, continuous assessment,

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academic performance, learning materials and examination. As a reaction to this pressure, some students get depressed. They may perhaps express their distress by crying all of the time, missing classes, or isolate themselves without understanding that they are depressed. Stress during educational and the transitory phase can lead to depression and have a negative impact on cognitive functioning, learning and coping capacity (Blandina et al, 2015).

In Africa, prevalence of mild depression was 6.7% in Ghana and 2.7% south Africa with a sex difference only in Ghana (Thapa et al, 2014), factors were found to be independently associated with depression lack of current work, lower quality of life were associated among males and females in south Africa with death of father was associated with depression in females and death of mother was associated with depression in males in rural Uganda (Afifi, 2006)

University students are unique group of people that are in a critical transitory phase in which they are going through stages of adulthood and can be one of the most stressful times in their lives, as they are trying to fit and maintain good grades, plan for the future, maintain relationships, maintain body shape, need support from family and friends, and be away from home. Lack of these needs can cause depression and other mental disorder.  A study among 262 medical students from the University of Nigeria reported a prevalence of 23.3% (Aniebue and Onyema, 2008), while another student reported a prevalence in which 8.3% students met the criteria for depressive disorder with 5.6% having a minor depressive disorder and 2.7% having major depressive disorder (Adewuya et al 2006).  Another study in Western Nigeria showed that among a sample of University students in Nigeria a prevalence of moderate depression was found 7.0% for severe depression and 25.2% moderate to severe depression. (Karl et al, 2013). The prevalence in Nigeria has been found to be increasing as decrease in employment opportunities and low socio economic status of undergraduates, as well as the rise in the economy of the country can be found

to be a reason for the rise in prevalence in the country (Tunji, 2014). At its worst, depression can lead to suicide. , nearly about 800 000 people die due to suicide every year as Suicide is the second leading cause of death in 15-29-year-olds. (WHO, 2019).

However, the average age of onset is on the decline, Younger age was also significantly associated with depression in the Nigerian cohort with every 1-year increment in age resulting in a 3% decrease in the odds of depression (Ademola et al, 2019), making depression a particularly silent problem area for university student population and factors associated with depression among these categories of people has not been adequately explored , reasons for the rising prevalence of depression has not been adequately explored.

## 1.3 JUSTIFICATION

Studies have shown that prevalence of depression among young adults mostly university student is on the increase and little or nothing is being done about it and depression onset is on the rise in recent times than in past decades. The reasons for this could be the result of rapid urbanization and life style changes. Evidence suggests that early intervention for depression in young adults can improve long-term outcomes as studies have shown that depression is 2-3 times likely in children with depressed parents, and it can be said that if these young adult become parents while being depressed, the prevalence rate of depression will keep increasing with decrease in the age of onset of depression.

This study is done at this time so as to understand the factors which are associated with depression and understanding what factors can be controlled to decrease the rate of prevalence of depression of these undergraduate students before it leads to other forms of mental disorders and cause sleeping disorder and lead to substance abuse, other related studies in western Nigeria, and

southern Nigeria, studied depression with smaller sample sizes and other studied depression among students on specific courses like medicine or medical related courses.

Recently cases of suicide and suicidal attempts among undergraduate students within and outside school environments has been on the increase , depression causes disability as depression is also associated with changes in  productivity in school and an increased risk of absenteeism from school.

The implication of my study findings will help to facilitate means to which depression can be reduced in Ibadan and also in Nigeria as a whole as my results would assist in determining factors which predisposes these undergraduates to depression both inside and outside the schooling environment, and help develop policy, health related policies and social related policies to help reduce the risk of these factors associated with depression. Policies that enhance academic and lifestyle programs such as physical activity are good adjunct therapies in preventing and treating depression. The health-related policy strategies and interventions listed for physical activity include major lifestyle activities recommended to address depression. Policies that describe appropriate standards of conduct can support good mental health. These policies should be able to describe how lecturers should treat students and be part of larger training efforts to improve lecturers and students understanding and skills in problem solving, effective communication, and conflict resolution , my study finding also aims to help to inform students how to identify symptoms of depression.

Consequences of not engaging on this research causes no increase in the knowledge and an increase in the prevalence of depression causing no reduction in suicide rates, substance abuse, low self-esteem and no knowledge in order to seek for help, also in turn affecting families as depressed person often, are unable to express their depressive states which leads to separation from

the family causing lack of togetherness, family unity. Also affecting the society as person with depression tend to dissociate from the society and are unable to contribute to the society's growth. Thereby affecting the nation as it reduces the nation's workforce as depressed person have episodes of sickness due to insomnia, alcohol and substance abuse an also in turn poor performances are their places of duty.

While depression and its effects have been studied in many different population groups and subgroups, the extent of this problem and effect of this disease on university students has not been well documented.

## 1.4 HYPOTHESIS

1. $H_0$ - there is no statistical significant difference between factors associated with depression and depression.

2. $H_A$- there is a statistical significant difference between factors associated with depression and depression.

## 1.5 RESEARCH QUESTIONS

1. What is the prevalence of depression among undergraduates in Ibadan metropolis?

2. What are the factors associated with depression among undergraduates in Ibadan?

3. Does knowledge of depression affect the rate of depression?

## 1.6 GENERAL OBJECTIVE

To identify the prevalence and determinants of depression among undergraduates of University of Ibadan

**1.7 SPECIFIC OBJECTIVES**

1. To determine the prevalence of depression among undergraduate students of University of Ibadan

2. To assess knowledge of causes, sign and symptoms of depression among undergraduate students of University of Ibadan

3. To determine association between knowledge of depression among undergraduates of University of Ibadan

4. To determine risk factors associated with depression among undergraduates of University of Ibadan.

# CHAPTER 2

## LITERATURE REVIEW

According to the World Health Organization(WHO), Depression is a common mental disorder, characterized by persistent sadness and loss of interest in activities that you normally enjoy, accompanied by an inability to carry out daily activities, for at least two weeks (WHO, 2019). According to the National Institute of Mental Health, depression is common mood disorder that causes severe symptoms like affecting how you think, feel and handle daily activities (NIH, 2018). Depression is more than just feeling sad, being depressed, often feels like carrying a very heavy burden, but you are not alone in this struggle. Depression is said to occur if its symptoms persist for two weeks. People with depression usually have one or more of these; anxiety, reduced concentration, sleeping disorder, restlessness, feeling of worthlessness, guilt or hopelessness, loss of energy, though of self-harm or suicide,(Yalemwork,2015) change in appetite or indecisiveness(WHO,2017).

Undergraduate students are people who are in the transition phase of their lives , trying to take bold steps of moving from adolescents to adulthood with the aim of completing their education and getting a sustainable job so as to survive life's challenges. They often get depressed as a result of inability cope challenges they face like self-esteem, academic performance, and lack of social support, family issues and issues which affects them mentally which makes them psychologically stressed out (Bonnie et al, 2015).

Depression is a risk factor to suicide and a second to third leading cause of death in this age group of youths, which can lead to educational impairment which can be attributed to increased rate of smoking, gambling and injury as well as substance abuse. (Yalemwork, 2015).

## 2.1 DIAGNOSIS AND SYMPTOMS

The diagnosis of depression was first introduced in DSM in 1980. It is a mood/affective disorder characterized by low mood, loss of energy and interest or pleasure (SBU, 2014), and common symptoms are loss of self-esteem, feelings of guilt, and thoughts about death, impaired concentration and sleep and appetite disturbances (SBU, 2014). Depression tends to be a recurrent and relapsing disorder, but those experiencing milder symptoms have a better prognosis (Knorring, 2013). For a diagnosis of clinical depression, according to the commonly used DSM-V criteria, five out of nine specified symptoms as well as an effect on professional or personal life are required. Some argue the cut point is arbitrary and lack evidence (Andrews, 2007), and the line between what is normal and pathological might indeed be hard to draw (SBU, 2014). It can further be known as a "disjunctive" diagnosis because two people with depression may have very few symptoms in common (Rogers, 2010). Young adults may express symptoms a bit differently from older adults (Mackenbach, 2006). As an example, irritability can be considered a symptom instead of low mood, but symptoms generally tend to be similar in all ages (Knorring, 2013). Self-reported depressive symptoms are measured with a variety of different questionnaires, for example the Beck Depression Inventory (BDI) and Centre for Epidemiologic Studies Depression Scale (CES-D)

## 2.2 EPIDEMIOLOGY OF DEPRESSION

In 1998, the WHO, estimated a global prevalence of about 11% in young adults out of about 322 million persons in the world (WHO, 2015). Depression often affect children, adolescents and young adults as the rate of depression drops with an increase in adulthood, It occurs in children as bipolar disorders and persistent emotional changes, with increase in age it becomes major depressive disorders in these young adult usually with an onset of 20 -23years (kessler, 2005),

studies have shown that depression is mostly found in young adults and teenagers. Females are 1.5-3.0 times more likely than males to experience depression in the early phase of adolescence and adulthood.

Life course epidemiology has mainly focused on the impact of childhood exposure on health in adulthood (Ben-shlomo, 2005). The principles of life course epidemiology applies however also to health in later childhood and adolescence (Galobardes, 2006). Socially patterned early childhood exposures can impact on mental development in young adults especially undergraduate students (Galobardes, 2006).

There are two general models that often are used to show how circumstances in early life can impact health later on in life. Low social position in early life can influence depression later in life through sensitive/critical periods of development (latency model) or, low social position in early life can be linked to depression through intermediate risk factors/pathways (chains of risk model)

Depression has been found to be multifactorial has it has been found to be genetically and environmentally inclined with depression as first degree relatives of depressed individuals are 3 times likely to develop depression than individuals without family history of depression. (Strakowski, 2013). In America, racial factors have been found to contribute to depressive symptoms as black American are found to have higher depressive symptoms which was found due to poor social support from teachers and white peers, which leads to low self-esteem and academic difficulties and outcomes(Brandon, 2013).

Depression has been found to occur due to low socio economic status, poor family background, relationship trauma, academic performance and when trigger events such as traumatic event such as accidents, death, rape, studies showed that females were more likely to have depressive symptoms than males which was found to be due to low socio economic statuses and

traumatic experiences such as rape and death of close person. These factors contribute adversely to development of depressive symptoms.

Depression is said to occur in females than males due to emotional vulnerability and hormones in their bodies and as well as individual coping capacity, studies have shown that young adult. Depression occurs in undergraduate as they tend to withdraw from regular activities and have difficulty concentrating in school and which affects academic performance and relationship with colleagues. It also occurs in families as young adults withdraw from family, while also having a hard time to concentrate on activities which could lead to abusing of substance so as to cope with depression.

Females with low grade point average across all racial group reported depressive symptoms than males, racial differences have been found to be a cause of depressive symptoms globally, in Iran, depressive symptoms have been found to be present in undergraduates who are substance abuser or dependent with a prevalence of 44.6%.(Niknami, 2013). In Hong Kong, prevalence was found to be 24.3% in young adults who were nursing student, it was discovered that depression was associated with year of study. Clinical specialty, financial support, social support, academic performances and sleep disorders, with prevalence higher in females than males which support other related studies.

Variation in prevalence rate has been found to be due to years of study, course of study, family background and crisis (Cheung, 2016). Studies has shown association between some factors which causes depression and depression , factors such as high social support has been found to be protective against development of depression while substance abuse has been found to be associated with development of depressive symptoms in young adults.

In Cameroon, in 2017, a prevalence rate of 30.6% which a third of the sampled population of medical students were found to have major depressive symptoms and according to severity of depression, 34.6% were found to have mild depression, 26.4% were found to have moderate depression, 3.4% were found to be moderately severe depression and 0.805 were found to have severe depression,(Ndutard, 2017), in Cameroon it was found that traumatic experiences , health factors like chronic diseases and female sex and course of study , substance abuse were associated with depression, however, there was no association between academic performance and depression unlike other studies outside Africa. Reasons for variation in this prevalence was due to sample population of medical students which was found that a lot of them regretted studying their course of study.

In Nigeria, prevalence rate of 7.0% severe depression and 25.2% of moderate to severe depression (Karl et al 2013), association has been found between sleeping disorders, history and positive screening of PTSD, lack of social support, poor academic performance , prevalence rate has been found to vary by location due to severity of course of study, rate of substance abuse, measurement of depression on a specific course of study and insensitivity of the measurement of the socio economic status and family background of students as well as self-reporting of academic performance.

## 2.3  ETIOLOGY OF DEPRESSION

Etiology of depression has been linked to environmental and genetic factors, children of parents who have depression are have two to three times increased rate of having depression than children of non-depressed parents. Genetic, neurological, immunological and neuroendocrinological mechanism and these mechanisms play a role in reacting to stressors, but mostly etiological processes are linked to sex and developmental factors. Models for depression

are diathesis-stress models in which stress related experiences trigger depression in those who may be vulnerable due to psychosocial characteristics and biological circumstances. Environmental related stressors which are associated with traumatic experiences, exposure during childhood. Depression is often influenced by other psychological disorders like anxiety, substance abuse, behavioral and personality disorders, clinical and social consequences of depression is exacerbated by psychological and medical disorders(England, 2009).

In 2007, Patel mentioned several risk and protective factors in an overview of mental health among children and adolescents. The factors include biological risk factors such as head trauma, exposure to toxins in pregnancy, malnutrition and biological protective factors such as good intellectual functioning and physical health. Psychological risk factors include learning disorders, abuse and neglect and difficult temperament. Psychological protective factors include good self-esteem and social skills. Social risk and protective factors are related to family, -school, - and community life. Risk factors include family conflicts and poor family management, academic failure, bullying, lack of appropriate school social support, exposure to violence and discrimination. Protective factors include for example family attachment, opportunities for involvement in family and school, opportunities for leisure, positive role models and rewards for attainments and involvements.

Several studies find that biological aspects such as genes play a role in the development of mental disorders (Stein,2014) and also that there is some heredity linked to the development of depression (Stein, 2014). It has been emphasized that depression is caused by a lack of signal substances in the brain, and also that there are sex differences in this (Jovanovich, 2007). Research further point to the importance of the glutamate system as well as inflammatory causes (Dantzer, 2011). Environmental factors can play a major role even in disorders that are mainly inherited

(Kim-Cohen, 2009). As an example showed that a short gene version for transportation of serotonin had an impact on the development of depression but risks where higher if the children in the study also experienced a difficult childhood. Depression is thus an interplay between genetic susceptibility and depression related stress in the environment, sometimes working its way via epigenetics.

Several studies also find that many different social and psychosocial factors play a role in the development of mental disorders (SBU, 2014). Diverse adulthood circumstances that have been linked to depressive symptoms, are for example, peer status (Modin, 2011) and bullying in school, parental divorce, sexual and physical abuse , serious conflicts and long term financial difficulties . Parental alcohol problems may also increase risks, Spirituality on the other hand has been associated with lower levels of depressive symptoms as well as high social support (Karl, 2013).

## 2.4 CLASSIFICATION OF DEPRESSION

According to the American Psychiatric Association's Diagnostic Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), depression can be classified into:

1. Disruptive mood deregulation disorder

2. Major depressive disorder

3. Persistent depressive disorder (dysthymia)

4. Premenstrual dysphonic disorder

5. Depressive disorder due to another medical condition

### 2.4.1 Disruptive mood deregulation disorder (DMDD)

Disruptive mood deregulation disorder is a new diagnosis in the DSM-5, as it is found that youths with a family history of bipolar disorder are at an increased risk of DMDD. Disruptive mood deregulation disorder is characterized by chronic irritability and symptoms of mania as well as attention deficit hyperactivity disorder, although it shares symptoms of sadness, as people with this disorder have increased risk of early adulthood disorders (Brotman et al., 2011).

Epidemiological studies have shown that children from 9-19 with DMDD have a life time prevalence of 3.3% and have increased risk of depressive and anxiety symptoms in later adulthood (Copeland et al, 2013), though it is relatively uncommon in adolescent but early onset causes major depressive disorder and persistent depressive disorder which is common in youth and adults (Florian and holtmann, 2013)

### 2.4.2 Major depressive disorders (MDD)

The essential feature of MDD is the clinical course which is characterized by one or more major depressive episodes without history of manic, mixed or hypomanic episodes. It requires a-two week period of depression or irritable mood or loss of interest from activities accompanied with weight loss or weight gain, loss of appetite or over eating, insomnia and recurrent suicidal ideas. Episodes of MDD may be recurrent or present as a singular episode.

An episode is considered to be over when the full criteria of major depressive episode have not been met for two consecutive months (APA, 2016). Majority of depressive disorders in youths and young adults are major depressions. Risk factors of MDD have been found to be lack

of social skills, school problems. Problematic substance abuse, traumatic experiences and perceived unpopularity. (Boris, 2004)

### 2.4.3 DYSTHYMIA

Dysthymic disorder is a chronic disturbance of mood that occurs for most of the day for at least two years, in young adults, the mood appears to be irritable rather than depressed with a duration of one year. During periods of depressed moods, poor appetite or overeating. Insomniac disorders, fatigue and low energy, poor concentration, low self-esteem and feeling of hopelessness.  A person is diagnosed of double depression if he/she has dysthymia for two years and an episode of MDD.


## 2.5 MENTAL HEALTH LITERACY AND KNOWLEDGE AMONG UNDERGRADUATES

Mental health literacy refers to an individuals' knowledge and beliefs about mental disorders that aid their recognition, management and prevention, (Thai, 2018). In 2015, in a study in USA, about <50% of youth identified depression as a mental health disorder and recommended friends, family and teacher as sources of help,(Mosley, 2000), although differences  in sex of respondents who identified depression as a mental health disorder, in other studies undergraduate students have been found to have poor knowledge of depression with uk having 19% knowledge and Australia having 3-16% , similar poor knowledge has been found in Portugal and Sweden who has found difficulty recognizing depression and psychosis as a mental health disorder. In all study irrespective of the difference in knowledge, females were found to be to recognize and have good knowledge of depression twice as likely as males. It has been found that knowledge of depression and mental health literacy is higher in undergraduates in industrialized countries than developing countries.

Depressive literacy has not been explored in Africa but social media has been found to be associated with good knowledge of depression with the recurring incidence of suicide in the country. Most knowledge of depression are found by young adults via smartphones (burns, 2010) as those who feel they might be stigmatized tend to source for information through families, friends and the psychiatrists.

In Nigeria, course of study which are found to be medically related have been found to have high knowledge of depression than people who study non –sciences  courses, the level of study has also been found to affect knowledge of depression as undergraduates within their first and second year have a hard time dealing the changes from college to the tertiary institution and concentrate all their time to their academic performance and fitting in with other persons in the school, people with higher levels of study have been found to have higher knowledge as they tend to find ways to deal with their depressive episodes and as such begin to prepare for life outside the undergraduate life.

## 2.6    PREVALENCE OF DEPRESSION

There is considerable variation in depression prevalence between and within different countries in Europe   but it is a disease that affects many and people of all ages. In Sweden the life time incidence of depression is about 36 percent for women and 23 percent for men (SBU, 2012). Approximately two percent of young adult boys and 7 per cent of the girls fulfil criteria for clinical depression during a year. Depression has been found to begin from adolescence than in childhood with a median age of onset of 23years. Prevalence rises with age for both sexes. Young adults can recover spontaneously, however recurrence is common. Girls have been found to be at a higher risk of depressive symptoms than boys (Rice, 2014) the prevalence peaks in young adulthood (25-34 years) possibly because this is the period where the dysfunctions become particularly apparent for

many. A feeling of mastering your life can become more prevalent in your 40s and 50s when depression rates also decline.

The National Board of Health and Welfare report that there has been a tripled increase of young people aged between 15 and 19 treated for depression in Sweden between 1998 and 2012 even though it is hard to determine the overall trend. One of the reasons for this increase is due to increase in poor mental health which has been suggested to be related to a reduced stigma. However it seems unlikely to be the only explanation and it has been concluded that there is a real increase of depressed mood, from the mid 1980 to mid-2000. The increase is also evident in other countries.

Differences in prevalence of depression has been due to course of study, level of study and age differences (Cheung, 2016). Factors such as high social support has been found to be protective against development of depression while substance abuse has been found to be associated with development of depressive symptoms in young adults.

In 2017, a prevalence rate of 30.6% which a third of the sampled population of medical students in Cameroon were found to have major depressive symptoms and according to severity of depression, 34.6% were found to have mild depression, 26.4% were found to have moderate depression, 3.4% were found to be moderately severe depression and 0.805 were found to have severe depression,(Ndutard, 2017), In Cameroon, it was found that traumatic experiences , health factors like chronic diseases and female sex and course of study , substance abuse were associated with depression, however, there was no association between academic performance and depression unlike other studies outside Africa. Reasons for variation in this prevalence was due to sample population of medical students which was found that a lot of them regretted studying their course of study.

## 2.7    DETERMINANTS OF DEPRESSION IN UNDERGRADUATES

### 2.7.1 *Social Factors*: *Economic factors, parent's marital status and depression*

Lower socio economic status has been associated with development of depressive symptoms. In 2009, Ashlund furthermore found that experiences of shame mediate the association between parental unemployment and depression in young adults. depressive symptoms have been found to occur in people who reside in environment which are not up to that of their peers or in housing which depict the poverty status of their families.(Brandon, 2013).Undergraduate and youth that come from poor background where parents have low educational attainment or poor income have depressive episodes and insomnia which results from trying to figure out how to make life better for themselves or the family (Einstenberg,2007), which can also lead to bipolar disorder due to psychological stress of combining education and personal life and the surviving life.(Abubakar et al ,2017)Studies has shown that depression is more in non-working young adult than working young adults. As depression affect socio economic as individuals with depressive episodes have low productivity at work, as undergraduates tend to work alongside schooling due to economic situations of the country and due to self-sustenance (Fletcher, 2012), they develop depressive episodes and mostly bipolar disorders and persistent depressive disorders.

Large family background such as children from polygamous family also suffer depressive disorder as they strive to be better than their sibling counterpart as they want to be better and those who are not  better experience verbal abuses which leads to depressive symptoms such as sleeplessness, and bipolar disorders. Studies has shown that young adults that are neglected by parents or raised by single parents suffer depressive symptoms and they tend to have reduced social support as a result of having nobody to share experiences and issues. Recent studies has shown that children raised by grandparents are at risk of developing depressive depression, as

grandparents taking parenting role is a predictor for depression. Spending time with both parents even though living with only one at the time, i.e. joint custody, which is common among adolescents and young adults (Laftman 2014)  in Sweden today, has further been found to be positive because young adults use parents as a source of emotional support to a higher extent than in single parent families  Individuals with family background of un educated parents have been observed to be develop depressive symptoms as parents could have low income due to lack of education which could result in poor housing environment , social support and lack of education of parents has been linked to depression as parents tend to work extra mile as they will be unskilled workers to cater for family which results in lesser quality time to give social support to individuals, and undergraduates who are young adults tend to need social support from parents as there are issues which cannot expressed to friends alone.(Parker, 2001).

### 2.7.2  *Social Factors*: Age and sex

Cohort studies have shown that the first onset of depressive symptoms is expected to occur at the age range of mid to late adolescence and early adulthood and a fall in depressive symptoms as the age range increases , which is due to maturity and learnt experiences as the year increases, according to studies , an observed onset of major depressive disorder begins at age 21-24 as they deal with independence from family coupled with academic stressor and also at this stage development of coping capacity occurs.

Prospective follow-up studies have shown that young adults like undergraduates, with depressive symptoms have flattened prevalence rates at ages 21-24 which contradicts other studies which show depressive symptoms onset at age 21-24. Increase and decrease in prevalence has been found to be due to biological, psychological and cognitive factors the older the person

get the lower the rate of depressive episodes , as maturity and life experiences help shapen the mental health of these young adults.

Depression has, for a long time, been considered predominantly a women's disease but recently more attention has been given to men (Spendelow, 2015; Yousfat, 2015). Most studies show that women more often have depression compared to men (Kessler, 2005). Depression is however, a common problem among men as well and an increasing problem among young men. Sex differences in depression are not about perceived differences in depression as such but rather about how it is expressed (Lehti, 2009). Some of the differences in men's and women's portrayals of their depressive symptoms include that men can be more prone to express physical symptoms e.g. chest pain, anger and externalizing symptoms, whereas women are more likely to emphasize guilt, shame, sadness and internalizing symptoms (Danielsson,2010). Furthermore, some men find it taboo to talk about feelings (Danielson, 2010). even though young men have been found to more often talk about emotional distress than elderly, a notion that can indicate that they bridge sexed norms Females have been found to be twice as likely as males to exhibit depression, theories have found that mixture of influences has increased female preponderances to depression which included neurohormonal differences (Hyde, 2008), genetic factors and psychological factors such as traumatic experiences and chronic psychosocial activities and poor coping capacities which varies in different females due to differences in family background. (Afzal et al, 2008).

They describe girls to be more vulnerable to depression because of the combination of a more affiliative style in social relations and transition difficulties, which is triggered by negative life events. A difficult transition includes insecure parental attachments, anxious temperament and low coping skills. This can affect anxiety levels and consolidate with affiliative needs that

are affected by sex socialization and hormonal changes at puberty and maturation. Together this leads to depression-provoking stress vulnerability that includes high affiliative focus, low attachment security, high anxiety and low instrumentality, which is then triggered by traumatic events and cause depression (cyranowski, 2013)

### 2.7.3 *Social Factors*: *Social support and the family*

Social support has been shown as promote mental health and also buffer against stressful life event, social support can be gotten from family, community, friends, lecturers. Lack of social support is a determinant of depression and depressive symptoms (bukhari and fzal 2017) which also has negative impact on the quality of life of university students, research has shown that good social support is protective against psychological disorders like stress, depression and anxiety. Consistent findings In a cross sectional study has shown that persons with high social support from friends, the community including lecturers have lower stress rates and are able to adjusted to the university, impact of social support helps reduce academic stress such as conflict, frustration on the individual psychological wellbeing which is dependent on the social support received from friends. (Madhur et al, 2019)

Studies have shown that social support from friend and family helps improve coping capacity as well as having strong impact on academic performance, social and emotional levels of the individuals, though for undergraduates, friends, relationship partners are increasingly more important sources of social support than the family which is as a result of the developmental stage of adolescence and early adulthood. Studies have shown that the mean age of 20years have more of social support from friends. Studies has shown that young adult females are more closer their family for social support on financial aids and closer to their mothers on relationship based issues and also to their friends on relationship ,academic and health issues unlike their male counterparts

who receive social support from their friends alone and little or no social support from their families, which could be due to sharing of experiences with friends in similar of higher age group in the university, as the university environment encourages and assist in social network by meeting people , new partners and have special relationships, as at this age students move away from home. . (Madhur et al, 2018),

Study shows that family is a predictive determinant of depressive symptoms due to broken home or death of loved family member(s), family is a stronger source of social support than friends as family's especially elderly family members have maturity with life experiences and life stressors. (Madhur et al, 2018)

Significant others have been found to be other forms of social support which has been found to have positive influence on mental health and is protective against depressive symptoms, in other studies, contradiction to this finding was found as social support received from significant others like lecturers, pastors was found to predict depressive symptoms among undergraduates. Females are seen in other finding to have more social support than males which could be due to reason of help seeking behavior of females and higher vulnerability to stressor but they make better use of the social support in their relationship and social life as well as have increased academic performances, greater stressors are on undergraduates students as they have to complete and do well in academic tasks and also strive to be who they want to be in the future is a possible explanation for some students experiencing depressive symptoms and reduced quality of life.

Lack of physical inactivity has been linked to social support as friends or family sometimes do not encourage individuals to engage in physical activities which sometimes lead to failed relationship as partner may require specific body size and shape which may have been

outgrown as a result of poor physical activity which can make undergraduate students depression and also lead to suicide ideation among them.

Social support from significant others such as religious group and doctors are also important as they help keep the emotional state of mind in check and they can be a place to relieve of the mental stress such as previous incidence of rape, failed relationship and health challenges. Undergraduate student usually do not talk about issues which could reduce self-esteem with friends or families, so significant others are good forms of social support. Individuals lacking in social support tend to have depressive symptoms such as bipolar disorders, and major depressive disorders and often tend to have suicide ideation and suicidal attempts.

### 2.7.4   Health Factors: *Traumatic experiences and post-traumatic stress disorder*

Traumatic experiences are associated with development of depressive symptoms, traumatic experiences include domestic and family violence, dating violence, community violence, sexual or physical abuse, car accidents and natural disasters,(Patel ,2007). Traumatic experiences causes' major depressive disorder as it sometimes involves loss of life, property, brutality. Undergraduates have time focusing on academics due to domestic and family violence like parents fighting and beating each other which is often more common when fathers beat up their mothers or when a parent is divorced or sent out of the house, it mostly have more depressive episodes which often is expressed as sadness and withdrawal from regular activities. (Dervois, 2014).

Girls are more susceptible to depressive symptoms which results from family violence than males, studies shows that mostly these depressive episodes causes bipolar disorder and also leads to failed relationship with opposite sex or lack of trust and lifelong depressive disorders. Community violence such as burgling, bullying, shooting and mugging often cause

depressive disorder, studies shows that depressive disorder last longer if the traumatic experiences involve loss of life and property.

Studies show that these traumatic experiences have larger effect on females than their male counterpart ,as studies show that traumatic experiences though painful helps to increase coping capacity of males and build their mental stability.  In Haiti, young adults from age 19-27 who were faced with post-traumatic stress disorder were observed to have prevalence rates of 36.95% to 59.1% as well as high depressive symptoms (Blanc et al, 2015). Rape Is a constant challenge faced by undergraduates, which mostly affect young adult females than males, rape is traumatic when it involves loss of virginity and contacting sexually transmitted diseases, depressive episodes are common in people who experienced rape, In a study the prevalence of symptom of PTSD, 29.69% of young adults were found to have depressive symptoms as Individual vulnerability to stressful traumatic life events varies considerably.

### 2.7.5   Health Factors: *Sexual practices*

Young adult and undergraduate female who are raised by single parent  have been found to engage in high sexual practices than those raise by both parents , as undergraduates with low socio economic status has been found to engage in sex practices both protected and unprotected for money, academic performance increment and other benefits, about 35% of youths have been found to engage in prostitution  with 24% being females and 11% being males, studies shows that sex is often exchanged for money , food and grades which is also found to be encouraged by the social network composition (gads et al,2009, Shannon et al 2010).

Presence of family member has been found to reduce risk of sexual practice by undergraduates and young adults as these family members offer social support and economic stability to these undergraduates. As leaving home has been found to weaken ties to parents,

teachers and adults of authority. Relationship between unprotected sexual practices and depression has been found to exist as undergraduate who reported non-adherence to condom usage have been found to develop sexual diseases like HIV and other Sexual transmitted diseases which involve large amount of money to be spent on treatment or which results in unwanted pregnancy in school which results in low academic performances which in turn leads to high depressive symptoms and sometimes suicide or suicidal attempts. (Rhode, 2001)

### 2.7.6  Health Factors: *Substance abuse and gambling*

Theories have shown that gambling and substance use emerge from the same risk factors, another model shows that gambling evolves out of substance abuse and the third model shows that gambling and substance abuse disorder both evolve out of conduct disorders as gamblers are observed to have withdrawal symptoms from regular activities.(Deykins,2011), addictions are dependent state over time by a predisposed person in an attempt to relieve a chronic stressful condition, for undergraduates, gambling has been seen as an alternative means of making income, as studies has shown that under aroused individuals use gambling to relief from underlying depression or boredom, as over-aroused individuals are more likely to be addicted to alcohol and substance abuse like hard drugs.(Danielson,2003)

Gambling and substance abuse has been seen as by young adults to increase self-esteem and feeling of inferiority, although some studies has shown no association between substance abuse, gambling and depression but clinically it has been observed that there is an association between depression and substance abuse as well as gambling as substance abuse like alcohol and drug produces subjective feeling of depression and neurovegetative signs such as sleep and appetite disturbances(Langhinrichsen, 2009). Substance abuse and gambling has been found to be a risk factor for suicidal attempts, studies has shown that depressed person are more likely to abuse

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substances. Although undergraduates have been found to use substance abuse and gambling as a coping mechanism as it is said to increase their mental capability so as aid academic performance (Thorson, 2011), self-esteem and increase socio economic status .

Depression and sociality has been found to be more on addictive gambling due to loss of money and due to regular loss on gambling. Studies show that undergraduates who have an history of alcohol use are four times likely to have a history of major depressive disorder, as well as drug abusers also have a life time prevalence of major depressive disorders, (Hudson, 2012), studies show that females who are substance abusers are six times likely to experience major depressive disorders than males due to vulnerability of handling issues and puberty as well social issues. Gambling related debt have been found in some studies to be the cause of depressive episodes which later leads to suicide ideation and attempts. (Al-busaidi, 2011)

### 2.7.7     Health Factors: *Sleeping disorder*

Undergraduates experience psychological functioning and physiological cognitive changes which makes them susceptible to psychological and sleep problems (Bootzin, 2005), studies show that about 10.7% of young adult experience insomnia as insomnia has been found to be a risk factor and it has been found to be associated with psychological problems.

The multiple changes undergraduate young adult experience can be stressful and serve as precipitating factors that activate biological and psychological predisposition for depression and insomnia. People with chronic insomnia are found to develop major depressive disorders which leads to substance and drug abuse or dependence and later suicidal attempts. Insomniac young adults have been found to maintain depressive symptoms than young adults without insomnia. Excessive daytime sleepiness increases vulnerability to a number of poor outcome

like academic performance, depressive moods and traumatic experiences like accidents. (Roane, 2008)

### 2.7.8  Physiological Factors: *Physical activity*

Regular participation in physical activity not only benefit young adults by strengthening the muscles, improving bone mass reducing risk cardiovascular diseases and chronic diseases but it improves self-esteem, reduce anxiety and stress.  Studies have shown that physical activity has protective effects on depression. Physical activity improves a variety of physiological problems in depressive people such as obesity. (Rodriguez, 2008)

A study in Norway shows that emotional symptoms is inversely associated with physical activity. And another study in east London shows a cross sectional association between physical activity and depression for both males and females with a decrease symptoms of about 8% for each additional hour exercise undertaken by week. In a study in 2011, 70.5% were found to have depressive symptoms while 29.4% were found to have mild to severe depression. Females were found to have lower level of physical activity scores than males, people with low physical activity score were found to have higher depressive symptoms. (Adeniyi, 2010).

**FIGURE 2.0**

**CONCEPTUAL FRAMEWORK**



**SUBSTANCE ABUSE**

1. Alcohol
2. Tobacco use

**SOCIO-ECONOMIC FACTORS**

1. Income
2. Occupation
3. Sponsor Of education

**OUTCOME VARIABLE**

Depression

**INTERVENING VARIABLE**

Knowledge of depression (causes, sign symptoms, identification of depressed person

**SOCIO-DEMOGRAPHIC VARIABLES**

1. Age
2. Sex
3. Educational level
4. Marital status of parent

**SOCIAL FACTORS**

1. Religiosity
2. Social support

**HEALTH FACTORS**

1. Traumatic experiences
2. Sleep pattern
3. Physical activity

(Adapted from *factors of depression among prisoners in Jimma town prison, south west*

*Ethiopia: by* Zakir Abdu, Teshome Kabeta, et al 2018)

# CHAPTER 3

# METHODS

## 3.1 STUDY AREA

Ibadan is the capital and most populous city of Oyo State, Nigeria. With a population of over 3 million (world urban areas, 2015), It is the third most populous city in Nigeria after Lagos and Kano; it is the country's largest city by geographical area.

Ibadan is located in south-western Nigeria, 128 km inland northeast of Lagos and 530 km southwest of Abuja, the federal capital, and is a prominent transit point between the coastal region and the areas in the hinterland of the country. The principal inhabitants of the city are the Yorubas and other various communities from other parts of the country.

There are 11 Local Government Areas (LGAs) in Ibadan Metropolitan area consisting of five urban LGAs in Ibadan metropolis and six semi-urban local governments in the less city (Demographia, 2015)

## 3.2 STUDY SETTING

This study was carried out in the University of Ibadan for this research:

The University of Ibadan fondly called UI, was established in 1948, and became a full-fledged University is 1962. The university has 16 faculties namely: arts, Science, Basic Medical Sciences, Clinical Sciences, Agriculture, the Social Sciences, Education, Veterinary Medicine, Pharmacy, Technology, Law, Public Health, Dentistry, Economics, Renewable Natural Resources and Environmental Design and Management.   There are twelve Halls of Residence

which provide accommodation for about 30% of the population of students in the regular studies mode. (University compass, 2019)

## 3.3 STUDY DESIGN

This study is a cross sectional study. As this research is done at this time so as to measure exposure and outcome among the population group

## 3.4 STUDY POPULATION

The study populations were undergraduates of the University of Ibadan who are full time students of the school from first year students to final year students of selected faculty and department.

## 3.5 SAMPLE SIZE DETERMINATION

The sample size was determined using the Leslie Kish formula for single proportion with a two sided confidence level of 95% and a precision of 5%. A prevalence (32.2%) of undergraduate students in western Nigeria. (Karl peltzer et al, 2013) The formula below was used:

$$N = \frac{(Z_{\alpha/2})^2 \, pq}{d^2}$$

Where,

N = minimum sample size

$Z_{\alpha/2}$ = two sided confidence level (1.96)

p = prevalence of undergraduate students in western Nigeria.

q = 1 – p

d = the desired precision (5%).

This gave a sample size of 335, adjusting for 10% non – response gave a minimum sample size of 372 participants.

**3.6 SAMPLING TECHNIQUE**

A multistage sampling technique that involves selecting faculties, departments, school levels and students was employed to select respondents:

1. In the first stage, every faculties that are in the institution were enumerated from which half was selected. Therefore, from 16 faculties in University of Ibadan, 8 faculties were randomly selected.

2. In stage 2, listing of all departments in selected faculties (32), selection of half (16) of the departments using simple random sampling

3. In stage 3, number of students that were interviewed from each departments were determined using proportionate allocation. The students interviewed were selected using simple random sampling using list of all registered students as sampling frame.

**3.7  ELIGIBILITY CRITERIA**

 **3.7.1  Inclusion criteria:** students of the specific university/area in any level of study in selected faculty and department resident on campus

 **3.7.2  Exclusion criteria:** students who do not consent to this study and distance learning students.

**3.8 DATA COLLECTION PROCEDURE**

. An anonymous, self-administered questionnaire was used to collect data from undergraduate students of the selected tertiary institutions. Data were collected using a self-administered, semi structured, questionnaire from undergraduate from the university. No research assistant was required, so the data was collected within 2 months. . The questionnaire was divided into four sections as follows

## 3.9 STUDY INSTRUMENT

A validated self-administered questionnaire was used to collect data from undergraduate students of the University of Ibadan, the questionnaire was developed from existing scales of measurement of depression. Self-developed sections of the questionnaire include: socio demographic variables, knowledge of depression and health variables

Section A: Sociodemographic characteristics of undergraduate students.

Section B: Knowledge of depression among undergraduates

Section C: Measure of depression (*adapted from Centre for Epidemiological studies on depression scale*).

Section D: Factors associated with depression (*question on social support adapted from COHEN scale on social support*)

**Socio demographic characteristics**

The questionnaire to assess socio demographic characteristics contained questions on sex, age , religion, ethnicity, faculty, department, educational class level and marital status of parents.

**Knowledge of depression**

The 5 item section of the questionnaire with an overall score of 10 was set at a cut off 4 with participant within score range of 1-4 as having good knowledge and participants with 5-10 as having poor knowledge, no question was reversely scored and the questions included open –ended and close ended questions in assessing the knowledge of depression from the students.

**Measure of depression grading**

The 20 item questionnaire adapted from the Centre for epidemiological studies on depression scale was reduced to 17 items because some of the questions were not appropriate for the location of the study, from the original score of 60, the score was reduced to 51. Depression was grouped according to cut-off points. With answers to questions in the likert scale from rarely, little of the time, moderate amount of time, most of the times ranging from 0-3. Some questions with positive traits like 17, 20, 24, and 28 were reversely scored. The scores were graded into three:

1. No to mild depressive sympathology  0 – 14 points

2. Moderate  depressive sympathology  15 – 19 points

3. Severe depressive sympathology      20 – 51 points

**Social support grading**

The shorted 11 item social support questionnaire adapted from Cohen and Hoberman, the total score is 33 questions. Social support was grouped into 3: low social support, moderate social support and high social support. The 11 item questionnaire is a likert scale questionnaire ranging from 0-3 with questions 1,6,7,10,11 being reversely scored. The scores were graded into three:

1. Low social support : 0 - 15

2. Moderate social support : 16 – 24

3. High social support : 25 – 33

**Physical activity questionnaire**

The 3 item physical activity questionnaire , with a total of 9 points, the likert scale questionnaire was scored as none as 0, some but less than one hour as 1, 1 hour but less than 3 hours as 2, and 3 hours or more as three. The score were graded into:

1. Good physical activity : 7-9

2. Moderate physical activity : 5-6

3. Poor physical activity: 0-4

## 3.10 VALIDITY OF INSTRUMENT

There was an extensive review of relevant literatures to ensure content and face validity. Construct validity was also be ensured by making sure that variables in the conceptual and theoretical frameworks are well represented in the instrument. The instrument was given to the study supervisor as well as an expert in the Faculty of Public Health to help ascertain the quality of the instrument.

## 3.11 RELIABILITY OF INSTRUMENT

Pre-test of the instrument was conducted to establish the reliability of the study instrument. The pre-test was conducted among 10 percent of the study sample size at Lead City University, a private university in Ibadan metropolis with similar characteristics as my intended study area. The pre-tested questionnaire was retrieved and subjected to cronbach alpha to get reliability co efficient of 0.75 and above.

**3.12 STUDY VARIABLES**

**3.12.1 Outcome variables:** the outcome variable of this study is depression

**3.12.2 Explanatory variables:** These are the possible risk factors that could lead to depression in undergraduates. They include:

1. Sex (male , female)

2. Level Of study (100level-500level)

3. Knowledge of depression ( good knowledge, poor knowledge)

4. Social support (low social support, moderate social support, high social support)

5. Traumatic experiences (accident, death of loved one, stigmatization, robbery, rape, kidnap)

6. Substance abuse (alcohol and tobacco intake)

7. Gambling (yes, no)

8. Sleeping disorder (good sleeping behavior, poor sleeping behavior)

9. Physical activity (yes, no)

10. Academic performances (good grade, poor grade)

**3.13 DATA MANAGEMENT AND ANALYSIS**

Data was entered into a statistical Software Package, Statistical Package for Social Sciences for analysis. Statistical test; chi-square for testing association on dependent variables. Binary logistic regression was also used to test the factors against the outcome variables. Results were analyzed using frequency distribution for categorical variables and mean and standard deviation for continuous variables.

## 3.14 ETHICAL CONSIDERATIONS

Ethical approval was sought and obtained from the Oyo State Ministry of Health Research Ethics Committee Board before going to the field for data collection. Verbal informed consent was obtained from participants after providing them with information and benefits of the research. They were also assured that information provided by them will be kept confidential so as for them to be sincere with responses provided and that they are free to withdraw from the research if need arises along with a letter from the head of department. The data collected from this study will only be used for the purpose of research and for general knowledge. Serial numbers rather than names were used on questionnaires in order to ensure participants anonymity.

# CHAPTER 4

# RESULTS

The survey findings are presented as follow:

1. The results of the survey on student's socio-demographic characteristics: age, sex, religion, level of study, marital status of parents, family income, educational sponsor and source of income of the students.

2. Prevalence of depression among undergraduate students

3. Knowledge of depression among undergraduate students

4. Relationship between knowledge of depression and social support of undergraduate students

5. Relationship between knowledge of depression and academic grades of students

6. Association between knowledge of depression and depression of undergraduate students.

7. Determining factors associated and predicting depression among undergraduate students.

**4.1 Sociodemographic characteristics of undergraduate students:**

Table 4.1 shows the distribution of age, sex, religion, marital status of parents and level of respondents. The total number of respondents are four hundred and one (401), of which 198 (49.0%) are males and 203 (50.2%) are females while 3 (0.8%) are missing values, out of the 401 respondents, people with the age range of 15-19 years of age are 35.4% of the total population, people within the age range of 20-24 years of age are 51.5% of the total population, people within the age range of 25-29 are 13.1% of the total population, while people above age 27 years are 3.5% of the total population. Out of the total number of respondents, 86 students practiced Islamic religion, 310 students practiced Christianity, while 2 students practiced other religions, and 3 were

missing. From the proportion, it was observed that 43.8% are first year students, 35.1% are second year students, 9.9% are third year students, 8.4% are fourth year students, 1.7% are in fifth year and above while 0.9% are missing values. From the time of the study, 227 persons (56.2%) reported that their parents were married , 20 persons (5.0%) reported that their parents are divorced, 128 persons (31.7%) reported that their parents are single parents, 19 persons (4.7%) reported that their parents are either widowed or widower.

Table 4.1: **Socio demographic characteristics of undergraduate students**     (n=401)

| Variables | Frequency | Percentage (%) |
|---|---|---|
| **Age in years** | | |
| 15-19 | 141 | 35.4 |
| 20-24 | 205 | 51.5 |
| 25-29 | 52 | 13.1 |
| **Sex** | | |
| Male | 198 | 49.8 |
| Female | 203 | 50.2 |
| **Level of study** | | |
| 100 | 177 | 43.8 |
| 200 | 142 | 35.1 |
| 300 | 40 | 9.9 |
| 400 | 34 | 8.4 |
| Others* | 7 | 1.7 |
| **Marital status of parent** | | |
| Married | 227 | 56.6 |
| Divorced | 20 | 5.0 |
| Single parent | 128 | 31.9 |
| Widowed or widower | 19 | 4.7 |
| **Religion** | | |
| Christianity | 310 | 77.9 |
| Islam | 86 | 21.6 |
| Others** | 2 | 0.5 |

**\*- 500, Extra year**

**\*\*- Traditional**
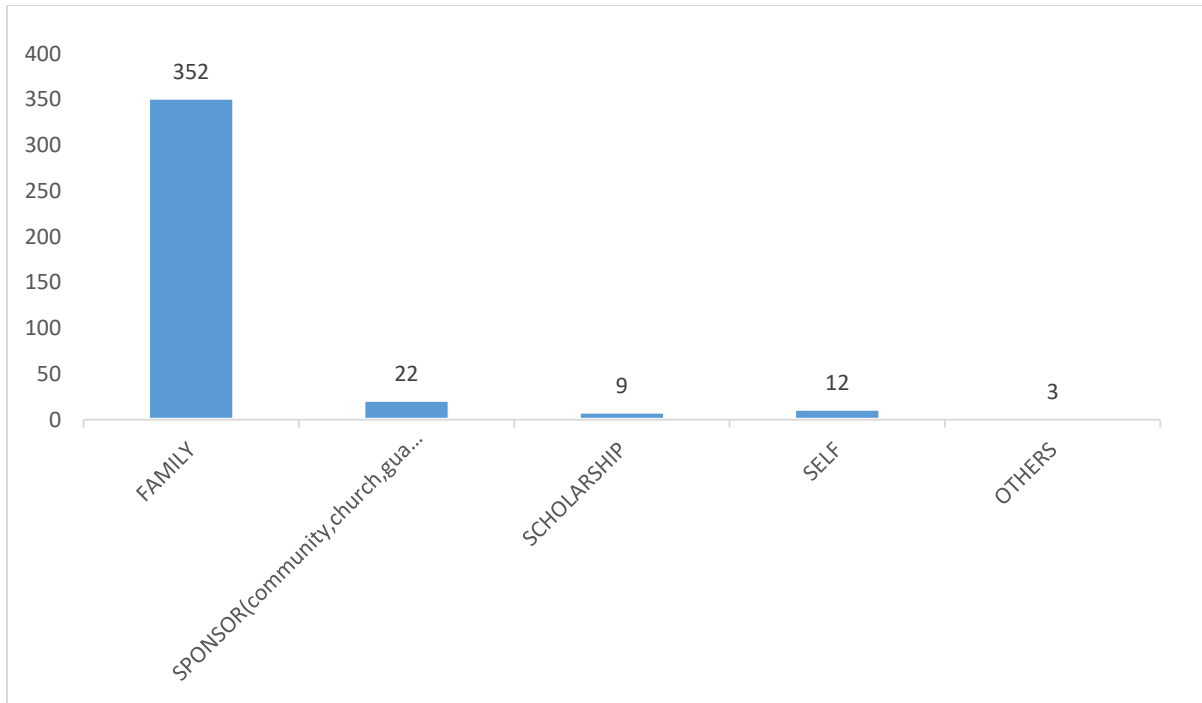
Fig 4.1: Frequency of educational sponsor of undergraduates of University of Ibadan

## 4.2 PREVALENCE OF DEPRESSION

### 4.2.1 Frequency of depression among undergraduates

From the data from respondents, a total of 348 respondents who responded to the questions

on depression, it was found that 218 students (62.6%) were depressed while 130 (37.4%)

were not depressed.

Table 4.2: Frequency of depression among undergraduates of University of Ibadan

| Depression | Frequency (n) | Percentage (%) |
|------------|---------------|----------------|
| Yes        | 218           | 62.6           |
| No         | 130           | 37.4           |
| Total      | 348           | 100            |

**4.2.2   Severity of depression among Undergraduate Students**

This figure shows the distribution of the severity of depression among the respondents, which shows 130 (37.3%) students were not depressed, 201 (57.8%) students were also found to have moderate depression and 17 (4.9%) were also found to have severe depression.

Table 4.3: Severity of depression among undergraduate students of University of Ibadan

| Depression | Frequency (n) | Percentage (%) |
|---|---|---|
| No-to-mild | 130 | 37.3 |
| Moderate | 201 | 57.8 |
| Severe | 17 | 4.9 |
| Total | 348 | 100 |

**4.3 ASSESSING KNOWLEDGE OF RESPONDENTS ON DEPRESSION**

**4.3.1 Frequency of knowledge of depression among undergraduate students**

From the table, it shows that out of 401 respondents, 255 respondents were able to give responses which assessed the knowledge of depression among undergraduates, 44 students (17.3%) were found to have poor knowledge while 211 students (82.7%) were found to have good knowledge of depression. Majority were found to have good knowledge of depression among the total number of respondents.

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Table 4.4- Frequency of knowledge of depression among undergraduate students

| Knowledge | Frequency (N=255) | Percentage (%) |
|---|---|---|
| **Good knowledge** | 211 | 82.7 |
| **Poor knowledge** | 44 | 17.3 |
| **Total** | 255 | 100 |

**4.3.2 Knowledge of depression among undergraduates**

From the data from respondents, out of 401 respondents, 255 respondents were able to give valid responses on their knowledge of depression, of which out of 211 (82.7%) had good knowledge of depression and 44 (17.3%) had poor knowledge of depression, out of these proportion, 102 males had good knowledge of depression, 35 had poor knowledge of depression, in the females, 9 had poor knowledge of depression while 109 had good knowledge of depression. After cross tabulation of the knowledge by level of study, it was shown that first year students have more knowledge of depression than students of other study years.

Fig 4.2: Sex of students and knowledge of depression among undergraduates of University of Ibadan
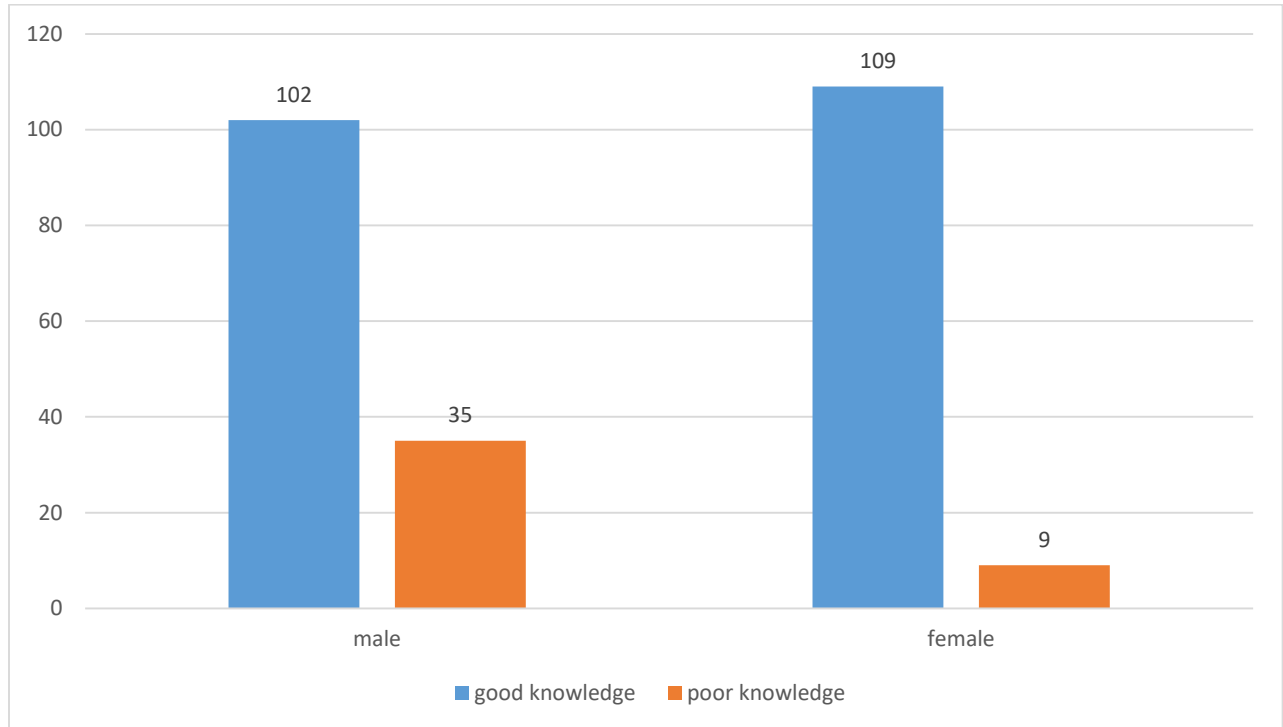
Fig 4.3: Knowledge of depression and level of study of undergraduate students of University of Ibadan



| | first year | second year | third year | fourth year | others |
|---|---|---|---|---|---|
| good knowledge | 102 | 81 | 10 | 15 | 3 |
| bad knowledge | 16 | 16 | 6 | 5 | 1 |
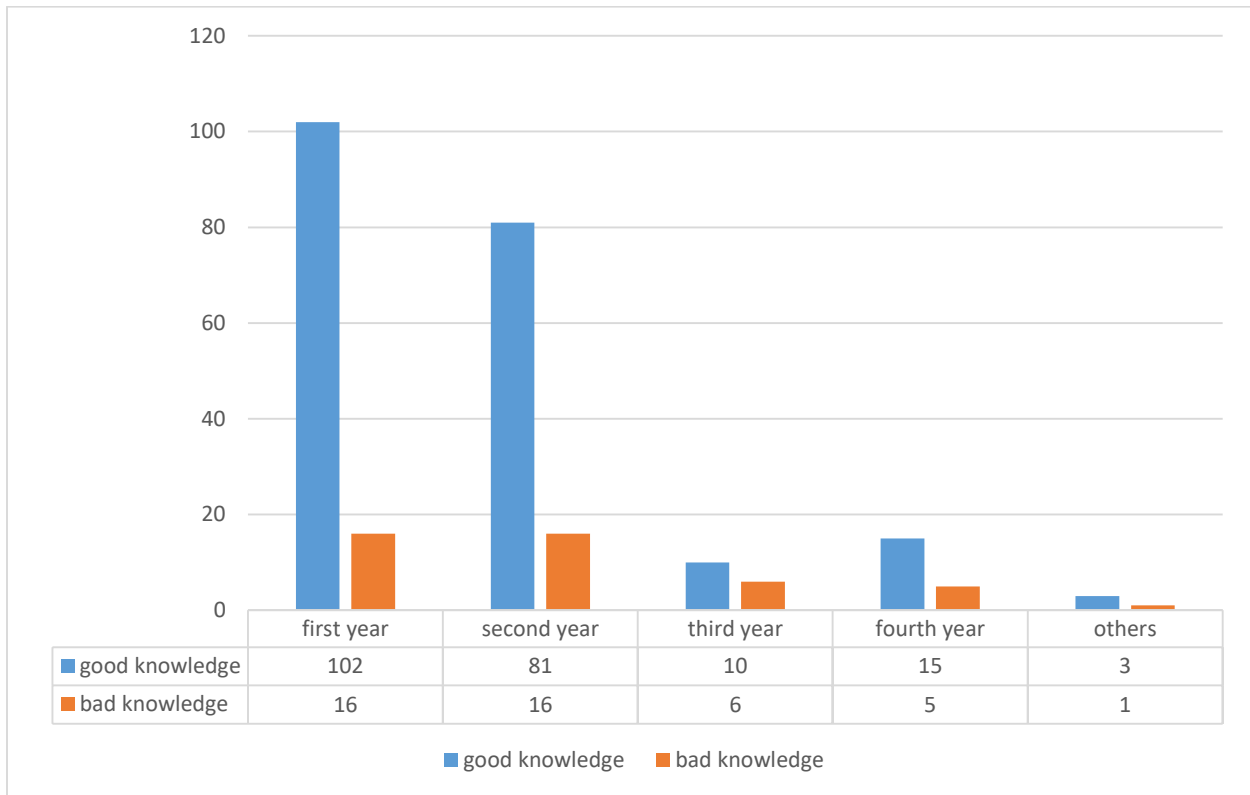
**4.3.3 Relationship between knowledge of depression and social support among undergraduate students**

Fig 4.4 shows the distribution of the knowledge among respondents and the social support they receive , and it shows 43 people with low social support and with 17 students (70.8%) with good knowledge and 7 ( 29.2%) person with poor knowledge and 18 with low support but without knowledge scores , with 126 persons having moderate social support , with 93 students (83.8%) respondents having good knowledge and 18 students (16.2%) having poor knowledge and 77 people with moderate support but with no knowledge score, with 86  having high support , 67 students (77.9%)  have poor knowledge and 19 students  (22.1%) have poor knowledge.

Fig 4.4: Knowledge of depression and social support level of undergraduate students of University of Ibadan



| | good knowledge | poor knowledge | |
|---|---|---|---|
| high support | 67 | 19 | |
| moderate support | 93 | 18 | |
| low support | 17 | 7 | |

high support ■ moderate support ■ low support
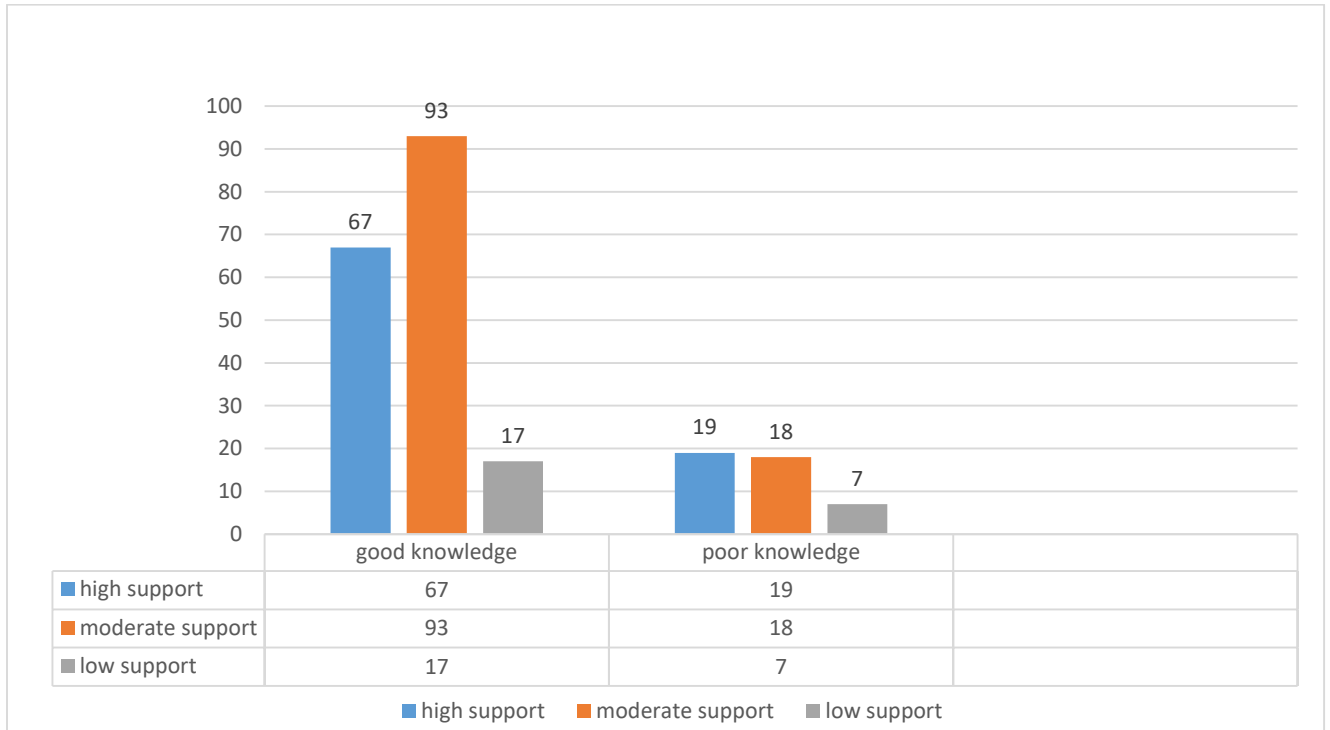
A chi-square analysis was also used to check for association between social support and knowledge of depression, a value of 0.0384 was derived which showed significant difference between knowledge and social support so we reject the null hypothesis.

**4.3.4 Relationship between knowledge of depression and academic grade of students**

Table 4.4.1 shows the relationship between academic performance and knowledge of depression among respondents, which shows about out of a total number of 72 students who are in the first class range of academic performance, 54 students (23%) have good knowledge of depression as they are able to identify symptoms, can recognize people affected with depression and know the causes of depression. Also, 109 respondents (51.7%) out of 126 students in the second class upper range and can also identify causes, symptoms and people affected with

depression, 45 students out of 51 students (21.3%) in the second class lower grade have good knowledge while 3 students (1.4%) in the third class range have good knowledge of depression.

About 18 students (41%) in the first class range have poor knowledge of depression, as they are unable to right responses on causes of depression, symptoms of depression and are unable to identify depressed persons. 17 students (39%) in second class upper also have poor knowledge of identification of causes, symptoms and identification of depression, also as 6 (14%) persons who are in the second class lower range and 3 persons (7%) who are in the third class lower range

*Table 4.4.1: Knowledge of depression and academic performance of undergraduate students of University of Ibadan*

| Academic performance | Good n (%) | Poor n (%) | P-value | $X^2$ |
|---|---|---|---|---|
| 1st class | 54 (23) | 18 (41) | 0.105 | 3.647 |
| 2nd class upper | 109 (51.7) | 17 (39) | | |
| 2nd class lower | 45 (21.3) | 6 (14) | | |
| Third class | 3 (1.4) | 3 (7) | | |
| **Total** | **211** | **44** | | |

After cross tabulation, a chi-square value of 3.647 was derived with a significance of 0.105 which means there is no significant difference between grade and knowledge of depression which means we fail to reject the null hypothesis.

## 4.3 Association between knowledge and severity of depression among undergraduates

A chi-square between knowledge of depression and severity of depression was carried out to test for association between these variables, analysis showed a p-value of 0.015, and a chi square value of 9.359 which signifies an association between these variables and with these, we reject the null hypothesis which says there is no association between knowledge of depression and depression.

Table 4.5: Knowledge and severity of depression among undergraduates

| Knowledge of depression | Not depressed n (%) | Moderately depressed n (%) | Severely depressed n (%) | P value | $X^2$ |
|---|---|---|---|---|---|
| Good knowledge | 27 (73) | 168 (83.6) | 16 (94.1) | 0.015 | 9.359 |
| Poor knowledge | 10 (27) | 33 (16.4) | 1 (5.9) | | |
| **Total** | 37 | 201 | 17 | | |

**Socio demographic factors associated with depression among undergraduates**

From table 4.6, there are 59 males (45.4%) and 71 females (54.6%) who are not depressed while there are 111 males (52.75%) and 107 females (47.25%) who are depressed with a p value of 0.046, which shows significant association between sex and depression with a chi- square value of 6.289. Logistics regression analysis showed that females are four times more likely to be depressed than males (O.R=4.602 [1.073-7.629], P=0.035) and this result shows that sex, mostly females, are likely to experience depression more than the males. In the Age category , in age group 15-19, there are 71 students  (54.6%) in the not depressed  category ,as well as 38 (29.23%) for age group 20-24 and 21 students (16.17%), there are 128 students (58.72%) ,69 students (31.65%) and 21 students (9.63%) belonging to age group 15-19,20-24,25-29 respectively who were found to be depressed, with association between age group 20-24 with a p value of 0.05 and chi-square value of 5.217. further analysis in table 4.7 showed  that people in age group 20-24 are three times more likely to experience depression than other age groups (15-19,25-29) with (O.R=3.311,[1.188-4.20],P=0.339) but age group 20-24 was not significant associated with depression .

The table also showed 48 students (36.9%) who had a single parent, 73 students (56.15%) who have both of their parents, 6 students (4.62) who reported their parents were divorced and 3 students (2.33%) who had lost one of their parents were found not to be depressed, while 64 students (29.36%) who had a single parent ,128 students (58.72%) who have both of their parents, 13 students (5.96%) whose parents are divorced and 13 students (5.96%) who had lost one of their parents were found to be depressed. With significant association to depression in students who had single parent and had lost of their parents with a p value 0.039, 0.028 and chi square value of 7.085 and 7.109 respectively. Further analysis in table 4.7 showed that students with single parents were

three times likely to be depressed than students with married parents and divorced parents, but students who had lost one of their parents were also three times more likely to be depressed than students whose parent were married or divorced, and showed significant association with depression (O.R=3.319 [1.45-3.802]; P=0.002)

Level of study had no association with depression as there were 50 students in first year, 48 students (36.9%) in second year, 17 students (13.08%) in third year, 14 students (10.77%) in fourth year and 1 student in other year of study who were not depressed while there were 93 students (42.66%) in first year, 79 students (36.2%) in second year ,24 students (11.01%) who were in third year, 15 students (6.88%) and 5 students (2.29%) who were in other years of study who were found to be depressed with p values greater than 0.05 .

**Social factors associated with depression among undergraduate students**

The non-depressed group had 8 students (6.15%) who were found to have low social support, 90 students (69.23%) found to have moderate support and 32 students (24.62%) with high support while the depressed group had 35 students (16.1%) with low social support, 129 students (59.17%) and 54 students (24.77%) with high support with low social support showing significant association with depression with a p-value of 0.047 and chi square of 5.872. Logistic regression in table 4.7 showed the odds of people with low social support as two times likely than those who had moderate support and high support to experience depression, with low social support showing significant association with depression (O.R=2.917,[1.309-3.501];P=0.009)

There were 76 students (58.5%) who attend religious activities less than one time, 30 students (23.07%) who attend religious activities 1-2 times, 20 students (15.38%) who attends religious activities 3-4 times, and 4 students (3.07%) attending religious activities more than 4

times, who were not depressed while there were 53 students (24.31%) who attend religious activities less than once, 84 students (38.5%) attended religious activities 1-2 times, 40 students (18.35%) attended religious activities 3-4 times and 51 students (23.4%) who attended religious activities more than 4 times. Chi-square analysis showed that students who attend religious activities were found to be depressed with significant association found between religious activities attended 1-2 times and depression with p value of 0.025 and chi square value of 8.250. Further analysis in table 4.7, showed that students who attend religious activities 1-2 time were four times likely to experience depression than those with higher duration of religious activities but no significant association was found in the logistic regression analysis (O.R-4.275[1.98-7.04],P=0.197)

**Health factors associated with depression among undergraduate students**

History of traumatic experiences shows 2 students (2.5%) with accident as the traumatic experience , 69 students (85%) with death of loved one as the traumatic experience, 4 students with stigmatization on disease as the traumatic experience, 2 students (2.5%) as robbery being the traumatic experience faced, 4 students (5.0%) being raped as the traumatic experience of students who were not depressed while 10 students (18.5%) with accident being the traumatic experience, 34 students (62.96%) with death of loved one as the traumatic experience, 1 student (1.85%) with stigmatization as the traumatic experience, 7 students (12.96%) with robbery being the traumatic experience,2 students (3.7%) with rape being the traumatic experience and 4 students (7.4%) with kidnap being the traumatic experience of students who were depressed. After analysis, there was a significant association between accident, death of loved one, rape and depression, $\chi^2$ [6.723], P=0.034, $\chi^2$ [8.291], P=0.001, $\chi^2$ [10,629], P=0.001. Further analysis shows that students who had accidents in the past have 7.5 times the risk of experiencing depression than students who have

had other traumatic experiences, although, there was no significant association observed between this traumatic experience and depression in the logistic analysis. Students who had lost a loved one had two times the likelihood of experiencing depression and this traumatic experience showed significant association with depression in the logistic analysis (O.R-2.036[1.004-4.376],P=0.004) and students who had experienced rape have two times the likelihood to experience depression (C.I=0.84-3.201) but showed no significant association with depression in the logistic regression analysis. (P=0.814)

During analysis of tobacco use and depression, 54 students (41.51%) were found to be taking tobacco, and 76 students were found not to use tobacco as they belong to the non-depressed category, in the depressed category, 187 students (85.7%) were observed to use tobacco while 31 students (14.22%) reported not to use tobacco, tobacco use was found not to have significant association with depression with a p value of 0.651 and chi-square of 0.205. Alcohol use was found to have significant relationship with depression in the chi square analysis, as 7 students (5.38%) who take alcohol and 123 (94.62%) who do not take alcohol, were not depressed while 32 students (14.68%) who take alcohol and 186 students (85.32%) who do not take alcohol, with chi-square value of 7.069 and p value of 0.008.further analysis shown in table 4.7 shows significant association in students who take alcohol have a 3 times likelihood of experiencing depression than those who do not take alcohol ,(O.R-3.787,C.I=1.753-5.402,P=0.011). Gambling was found not to have significant association with depression in the chi-square analysis, 24 students (18.5%) who reported to engage in gambling out of 130 students who were not depressed and 44 students (20.2%) who reported to engage in gambling were depressed with a chi square of 0.154 and p-value of 0.695.

Significant relationship was not found in exercise with a chi-square of 4.198 and p-value of 0.74  , out of 130 respondents, 14 students (10.77%) were found not to be depressed and had exercise while 39 students (17.90%) out of 218 who were depressed  also reported to engage in exercise. Sleeping pattern was found to have significant association in the chi-square analysis with depression with a p-value of 0.02 and chi-square value of 9.499, out of the non-depressed category, 119 students (91.54%) reported to have good sleep and 11 students (8.46%) reported to have poor sleep while in the depressed category, 172 students (78.9%) reported to have good sleep and 46 students (21.1%) reported to have poor sleep. Table 4.7 shows significant association with a two times likelihood of students who do not have good sleep to experience depression than people who experience good sleep.(O.R=2.893[1.439-5.815],P=0.003)

Academic performance showed no significant association with depression, with a total of 130 respondents who were not depressed, 98 students (75.4%) had good grade while 32 students (24.6%) had poor grade, also, in the depressed category, and 163 students (74.7%) had good grades while 55 student had bad grades, with a p-value of 0.89 and chi-square 3.4901.

**Table 4.6 Bivariate analysis of factors associated with depression among undergraduates**

| Factors | Not depressed n (%) | Depressed n (%) | $X^2$ | P-value |
|---|---|---|---|---|
| **Sex** | | | | |
| Male | 59 (45.4) | 111 (52.75) | 6.289 | 0.046* |
| Female | 71 (54.6) | 107 (47.25) | | |
| **Age** | | | | |
| 15-19 | 71 (54.6) | 128 (58.72) | 0.559 | 0.502 |
| 20-24 | 38 (29.23) | 69 (31.65) | 5.217 | 0.050* |
| 25-29 | 21 (16.17) | 21 (9.63) | 3.263 | 0.071 |
| **Marital status** | | | | |
| Single Parent | 48 (36.9) | 64 (29.36) | 7.085 | 0.039* |
| Married Parent | 73 (56.15) | 128 (58.72) | 0.219 | 0.640 |
| Divorced Parent | 6 (4.62) | 13 (5.96) | 0.592 | 0.287 |
| Widowed/Widower parent | 3 (2.33) | 13 (5.96) | 7.109 | 0.028* |
| **Level of Study** | | | | |
| 100 | 50 (38.5) | 93 (42.66) | 0.593 | 0.441 |
| 200 | 48 (36.9) | 79 (36.2) | 0.110 | 0.740 |
| 300 | 17 (13.08) | 24 (11.01) | 1.612 | 0.204 |
| 400 | 14 (10.77) | 15 (6.88) | 1.117 | 0.291 |
| Others | 1 (0.007) | 5 (2.29) | 1.892 | 0.178 |
| **Social support** | | | | |
| Low support | 8 (6.15) | 35 (16.1) | 5.872 | 0.047* |
| Moderate support | 90 (69.23) | 129 (59.17) | 3.498 | 0.179 |
| High support | 32 (24.62) | 54 (24.77) | 1.52 | 0.28 |
| **Religious activity** | | | | |
| Less than one | 76 (58.5) | 53 (24.31) | 4.214 | 0.076 |
| 1-2 times | 30 (23.07) | 84 (38.5) | 8.250 | 0.025* |
| 3-4 times | 20 (15.38) | 40 (18.35) | 0.393 | 0.622 |
| More than 4 times | 4 (3.07) | 51 (23.4) | 0.100 | 0.923 |
| **Traumatic experiences** | | | | |
| Accident | 2 (2.5) | 10 (18.5) | 6.723 | 0.034* |
| Death of loved one | 69 (85) | 34 (62.96) | 8.291 | 0.001* |
| Stigmatization | 4 (5.0) | 1 (1.85) | 3.02 | 0.67 |
| Robbery | 2 (2.5) | 7 (12.96) | 2.213 | 0.463 |
| Rape | 4 (5.0) | 2 (3.7) | 10.629 | 0.001* |
| Kidnap | 0 | 4 (7.4) | 1.322 | 0.103 |
| **Tobacco Use** | | | | |
| Yes | 54 (41.54) | 187 (85.78) | 0.205 | 0.651 |
| No | 76 (58.46) | 31 (14.22) | | |
| **Alcohol use** | | | | |
| Yes | 7 (5.38) | 32 (14.68) | 7.069 | 0.008* |
| No | 123 (94.62) | 186 (85.32) | | |
| **Gambling** | | | | |
| Yes | 24 (18.5) | 44 (20.2) | 0.154 | 0.695 |
| No | 106 (81.5) | 174 (79.8) | | |
| **Ptsd** | | | | |
| Yes | 6 (4.8) | 17 (81.3) | 1.314 | 0.252 |
| No | 118 (95.2) | 192 (18.7) | | |
| **Exercise** | | | | |
| Yes | 14 (10.77) | 39 (17.90) | 4.198 | 0.74 |
| No | 116 (89.23) | 179 (82.1) | | |
| **Sleep pattern** | | | | |
| Good sleep | 119 (91.54) | 172 (78.9) | | |
| Poor sleep | 11 (8.46) | 46 (21.1) | 9.499 | 0.02* |
| **Academic performance** | | | | |
| Good grade | 98 (75.4) | 163 (74.7) | | |
| Poor grade | 32 (24.6) | 55 (25.3) | 3.4901 | 0.89 |

*Significant P-value

**Table 4.7: Logistic regression analysis predicting depression among undergraduate students**

| Factors | Odds Ratio | 95% C.I | P-value |
|---|---|---|---|
| **Sex** | | | |
| Male | 1.000 | | |
| Female | 4.602 | 1.073 – 7.629 | 0.035* |
| **Age** | | | |
| 20-24 | 3.311 | 1.188 – 4.620 | 0.339 |
| **Marital status of parents** | | | |
| Single | 3.023 | 1.334 – 5.378 | 0.065 |
| Widowed /widower | 3.319 | 1.45 – 3.802 | 0.002* |
| **Social support** | | | |
| Low social support | 2.917 | 1.309 – 3.501 | 0.009* |
| **Religiosity** | | | |
| 1-2times | 4.275 | 1.98 – 7.04 | 0.197 |
| **Traumatic Experiences** | | | |
| Accident | 7.507 | 2.483 – 15.63 | 0.252 |
| Death of loved ones | 2.036 | 1.004 – 4.376 | 0.004* |
| Rape | 2.325 | 0.84 – 3.201 | 0.184 |
| **Alcohol use** | 3.787 | 1.753 – 5.402 | 0.011* |
| **Sleep pattern** | | | |
| Poor sleep | 2.893 | 1.439 – 5.815 | 0.003* |

*significant p-value

# CHAPTER 5

## DISCUSSION

The aim of this study is to determine the prevalence and determinants of depression among undergraduates in Ibadan metropolis. Other studies on determinants of depression have addressed mainly depression in specific set of students either studying the same course or in the same level (Suleiman et al, 2017).

During this research, a high response rate was recorded among students observed. Which is a bit lower than other studies with higher response rates even though previous studies had lower sample size (Dabana and Gobir, 2018). This high response rate was achieved due to briefing of respondents on the objectives and importance of this study and assurance of confidentiality even though most of the participants were busy and were not interested in the research due to time of research which was during their exam periods.

## 5.1 Prevalence of depression among undergraduate students

This study found high prevalence of moderate depression and low prevalence of severe depression in students, which had a slightly higher rate than previous studies which studied prevalence of depression and associated factors (Karl et al ,2013) and also lower than other study which reviewed studies of depression prevalence in university students (Ibrahim et al,2012).this study is one of the studies that assessed depression in undergraduates generally ,as other studies assessed depressed in students of specific course of study (Onyema,2018) who found prevalence of depressive symptoms among Nigerian medical undergraduates.

Difference in prevalence rate can be attributed to difference in instrument used as there are variations in the scale of measurement of depression like the PHQ scale which has a different

means of classification of depression than the CES-D scale, also difference in sample size, which contributed to higher or lower rate found in both studies. In 2013, Karl used a high sample size of students (Karl, 2013) which he used the CES-D scale for measuring depression.

**5.3 Knowledge of depression among undergraduate students.**

There was a high knowledge in students with males having good knowledge than the females which corresponds with other literature reviews which says females have higher mental literacy than males (Coles et al, 2016)). however, the result of the cross tabulation of knowledge of depression against depression (moderate depression and severe depression shows association between knowledge of depression and depression and shows that good knowledge is protective of depression which corresponds with other results and findings (Ruble et al,2013) but it also shows that school based intervention improves depression and attitudes towards help seeking behaviours like social support, exercises and introduction of psychological programs like counselling (Burns and Rapee, 2006).

**5.4 Factors associated with depression among undergraduate students**

*Demographic characteristics*

Other studies such as (chen et al ;Ibrahim et al,2012) found significant differences between age , sex) ,with expectations of association between depression and age , this study found out that there is no association between depression and age group, studies has shown the mean age of onset beginning from twenty two years with the age group of onset from age twenty to twenty four (Lewinsohn, 2003).studies has shown that this age group suffers severe depression due to financial issues or inability to get a job as much as their peers (Child Trends Databank,2018) ,sex was found to be associated with depression, as females were found to experience depression than males which

was also found in (chen et al: Ibrahim et al,2012). Study by Karl 2013, showed males have a lower risk of experiencing depression, which agrees with studies that shows females often present internalizing symptoms of depression while males present externalizing symptoms of depression like anger (Albert,2015).

**5.5 Social factors associated with depression among undergraduate students**

*Social support and religiosity*

This result shows that low social support is associated with depression than people who have high social support, which in turn shows that higher social support reduces the risk of depression as found in other studies (Karl et al, 2013) and a protective effect between high social support and depression. Social support from family and friends have been found to be among the best forms of social support as well as religiosity (Kim, 2001). Although studies has found that most people would rather share their problems with their family members and friends than counsellors or religious persons as they believe their family members and best friend knows them better than other people (Staats, 2017). This study showed no significant association between those who attended religious activities less times than usual, although result showed a high protective effect between high religious activities and depression (Karl et al, 2013). Reason for difference in studies can be attributed to difference in sample size and difference in instrument used,

*Traumatic experiences*

Traumatic events have been linked to depression as they bear huge psychological burden , this study observed a series of traumatic events such as accident, death of loved one ,stigmatization due to disease, robbery, rape and kidnap, this study shows no significant association in students who has been involved in accident and depression, although in other studies, traumatic events are

considered as whether students are being hit by a sex partner , physical abuse or diagnosis of Hiv/Aids (Karl et al, 2013). Other post-traumatic stress events such as death of loved ones are two times likely to cause depression than other traumatic events, while rape has no significant association with depression, than other traumatic events, as traumatic events are found to be associated with pain and depression (Noel et al,2017), traumatic events are easily remembered and triggered by events which often affects individuals by putting them in pain and isolation sessions, with which some studies has showed youth commits suicide as a result of these traumatic experiences (Vigil,2019), this study is slightly different from the found by (Karl et al, 2013) which found significant association between kidnap, physical abuse and stigmatization due to disease with which the result found were not significant in this study, which can be due to difference in instruments and their larger sample size.

**5.6 Health factors associated with depression among undergraduate students**

Poor sleep pattern has been linked to depression as it is found in this research that poor sleep pattern or insomnia is significantly associated with depression, sleep patterns as found in other studies showed that poor sleep mediates the association between Ptsd , chronic pain and depression,(Noel,2017) ,though with a high likelihood of causing depression (Karl et al, 2013) as both showed association between poor sleep pattern and depression , it can be resolved as a determinant of depression.

This study also showed significant association between alcohol use and depression with a high risk of users being more likely to develop moderate depression than those who do not take alcohol, the slope of heavy alcohol use were significantly and positively associated with depression (Wang et al, 2019) just as found in other studies, these studies also showed a higher alcohol use in higher age group of students. But is slightly different in another study which showed lower risk of

a student with heavy episode of alcohol being depressed. (Karl et al, 2013). Difference in finding in each study can be linked to difference in instrument and classification of high alcohol use.

## 5.7 CONCLUSION

Depression is a common illness which is different from usual mood fluctuations as it is one of the four diseases considered as a common cause of disability. It affects undergraduate students, who are people who are in the transition phase of their lives , trying to take bold steps of moving from adolescents to adulthood with the aim of completing their education and getting a sustainable job so as to survive life's challenges. They often get depressed as a result of inability cope challenges they face like self-esteem, academic performance, and lack of social support, family issues and issues which affects them mentally which makes them psychologically stressed out

This study shows that there is a high prevalence of moderate depression and a low prevalence of severe depression, with students having high knowledge of causes and sign and symptoms of depression as well a high number of them have moderate and high support. This study also observed significant relationship between knowledge of depression and depression. This study observed that factors such as, sex, marital status (widow/widower), low social support, traumatic experiences; death of loved one, alcohol use, and sleep pattern, have shown significant association with depression and this study has shown how much being in one group or the other can cause depression either moderately or severely.

This study suggests that sex, marital status (widow/widower), low social support, traumatic experiences (death of loved one), alcohol use, and poor sleep are determinants of depression, which have been observed in other studies, that showed significant associations between these factors

and depression. These factors provide insights on knowledge of depression and factors associated with depression in a public university of Nigeria, as these finding could help to identify depressed persons and help guide and facilitative approaches to prevention and treatment of these persons.

**RECOMMENDATION**

The following measures are therefore proffered towards a sustainable improvement in the prevalence of depression and depressive symptoms in students.

1. Researches has shown that younger people may respond to subtle intervention would could influence their decision to seek professional assistance , an example is introduction of scheduled health assessment which should be both mental, physical and social which could lift student's mental health and destigmatize health issues.

2. Mental health services should be arranged to meet the needs of university students. Assistance of students with low family incomes with scholarships and students jobs would also help reduce the rate of depression in students with low family income which would also in turn influence productivity in their academic performances.

3. Public health education should be given to students on advice on reduction or cessation of alcohol, tobacco and gambling by students and education on the risks associated with these.

4. Schools should encourage students in participation in physical activities which increases social connectedness among students which increases forms of social support and also help as a coping mechanism for students to share experiences and also act as aid from psychological burdens and problems.

5. Schools should also increase access to school counsellors with which students can discuss problems confidentially with these personnel which can provide better answers and aids to their problems.

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# APPENDICES

## QUESTIONNAIRE

## DETERMINANTS OF DEPRESSION AMONG UNDERGRADUATES IN IBADAN METROPOLIS

My name is DAVIES, Moyosore Samuel, a postgraduate student of the Department of Epidemiology and medical statistics, Faculty of Public Health, College of Medicine, University of Ibadan, and Ibadan, Nigeria. I am carrying out a research work on the determinants of depression among undergraduate in Ibadan metropolis. This study will help to identify and mediate against these determinants so as to make help facilitate adjustable changes to these determinants. I seek truthful response to the questions. The interview will take about 30 minutes, at most, of your time Your cooperation is highly appreciated and recognized.

Thanks.

## SECTION A- SOCIODEMOGRAPHIC CHARCTERISTICS

| S/N | QUESTIONS | RESPONSES |
|-----|-----------|-----------|
| 1. | AGE IN YEARS | …………………. |
| 2. | SEX | **A.** MALE  **B.** FEMALE  **C.** OTHERS |
| 3. | COURSE OF STUDY | ……………………… |
| 4. | FACULTY | ……………………… |
| 5. | LEVEL OF STUDY | **A.** 100  **B.** 200  **C.** 300  **D.** 400  **E.** OTHERS |
| 6. | FAMILY INCOME | **A.** <50,999  **B.** 51,000-149999  **C.** 150,000-199999  **D.** >ABOVE 200,000 |
| 7. | WHO SPONSORS YOUR EDUCATION | **A.** FAMILY  **B.** SPONSOR  **C.** SCHOLARSHIP  **D.** SELF  **E.** OTHERS |
| 8. | SOURCE OF INCOME | **A.** JOB  **B.** FAMILY  **C.** SPONSORSHIP  **D.** OTHERS |
| 9. | IF ANSWER IS A, WHAT TYPE OF JOB | ………………………. |

## SECTION B- KNOWLEDGE OF DEPRESSION

| S/N | QUESTIONS | RESPONSES |
|-----|-----------|-----------|
| 10. | HAVE YOU EVER HEARD ABOUT DEPRESSION? | **A.** YES  **B.** NO  **C.** I DON'T KNOW |
| 11. | WHAT ARE SOME OF THE SYMPTOMS OF DEPRESSION? | SLEEPING DISORDER…… <br> LOSS OR GAIN OF WEIGHT… <br> LOSS OR GAIN OF APPETITE…. <br> SUICIDE IDEATION…… <br> LOSS OF INTEREST FROM ACTIVITIES……. <br> ACADEMIC FAILURE…… |
| 12. | WHAT CAUSES DEPRESSION? | …………………………………………………. |
| 13. | DO YOU KNOW PEOPLE WHO CAN BE AFFECTED WITH DEPRESSION | ………………………… |

| 14. | HOW CAN A PERSON SUFFERING DEPRESSION BE RECOGNIZED? | ………………………………………….. |
|---|---|---|

## SECTION C- PREVALENCE OF DEPRESSION

**Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.**

|  |  | Rarely or none of the time (less than 1 day ) | Some or a little of the time (1-2 days) | Occasionally or a moderate amount of time (3-4 days) | Most or all of the time (5-7 days) |
|---|---|---|---|---|---|
| 15. | I was bothered by things that usually don't bother me |  |  |  |  |
| 16. | I did not feel like eating; my appetite was poor |  |  |  |  |
| 17. | I felt I was just as good as other people. |  |  |  |  |
| 18. | I had trouble keeping my mind on what I was doing. |  |  |  |  |
| 19. | I feel depressed. |  |  |  |  |
| 20. | I felt hopeful about the future. |  |  |  |  |
| 21. | I thought my life had been a failure. |  |  |  |  |
| 22. | I felt fearful. |  |  |  |  |
| 23. | My sleep was restless. |  |  |  |  |
| 24. | I was happy. |  |  |  |  |
| 25. | I talked less than usual |  |  |  |  |
| 26. | I felt lonely. |  |  |  |  |
| 27. | People were unfriendly. |  |  |  |  |
| 28. | I enjoyed life |  |  |  |  |
| 29. | I had crying spells. |  |  |  |  |
| 30. | I felt sad. |  |  |  |  |
| 31. | I felt that people dislike me. |  |  |  |  |

**SECTION D- FACTORS ASSOCIATED WITH DEPRESSION**

*SOCIAL SUPPORT QUESTIONNAIRE*

| S/N | QUESTION | DEFINITELY FALSE | PROBABLY FALSE | PROBABLY TRUE | DEFINITELY TRUE |
|---|---|---|---|---|---|
| 32. | I feel that there is no one I can share my most private worries and fears with. | | | | |
| 33. | If I were sick, I could easily find someone to help me with my daily chores | | | | |
| 34. | There is someone I can turn to for advice about handling problems with my family | | | | |
| 35. | If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me | | | | |
| 36. | When I need suggestions on how to deal with a personal problem, I know someone I can turn to | | | | |
| 37. | I don't often get invited to do things with others | | | | |
| 38. | If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.). | | | | |
| 39. | If I wanted to have lunch with someone, I could easily find someone to join me | | | | |
| 40. | If I was stranded 10 miles from home, there is someone I could call who could come and get me | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 41. | If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it | | | | |
| 42. | If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me | | | | |

| S/N | QUESTION | |
|---|---|---|
| 43. | HOW OFTEN DO YOU ATTEND RELIGIOUS ACTIVITIES? | **A.** LESS THAN ONCE  B. 1-2 TIMES  C. 3-4 TIMES  D. MORE THAN 4 TIMES |
| 44. | WHAT NEGATIVE LIFE EVENT HAVE YOU EXPERIENCED? | **……………………………………………………..** |

**HEALTH VARIABLES.**

*KINDLY TICK THE RESPONSE WHICH IS APPLICABLE TO THE QUESTION.*

| S/N | QUESTIONS | |
|---|---|---|
| 45. | DO YOU SMOKE TOBACCO OR CIGARETTE? | **A.** YES  **B.**  NO   **C.** I DON'T KNOW |
| 46. | HOW OFTEN DO YOU SMOKE IN A WEEK? | **A.** NEVER  **B.** ONCE   **C.** TWICE   **D.** MORE THAN ONCE |
| 47. | DO YOU THINK SMOKING RELIEVES YOUR DEPRESSION? | **A.** YES  **B.** NO   **C.** I DON'T KNOW |
| 48. | WHO INFLUENCES SMOKING? | **A**. SELF  **B**. FRIENDS  **C.** FAMILY  **D**. OTHERS |
| 49. | DO YOU TAKE ALCOHOL? | **A.** YES  **B.**  NO   **C.** I DON'T KNOW |
| 50. | HOW OFTEN DO YOU TAKE ALCOHOL IN A WEEK | **A.** NEVER  **B.** ONCE   **C.** TWICE   **D.** MORE THAN ONCE |
| 51. | WHO INFLUENCES ALCOHOL INTAKE? | **A**. SELF  **B**. FRIENDS  **C.** FAMILY  **D**. OTHERS |
| 52. | DO YOU ENGAGE IN GAMBLING? | **A.** YES  **B.**  NO   **C.** I DON'T KNOW |
| 53. | WHO INFLUENCES GAMBLING? | **A**. SELF  **B**. FRIENDS  **C.** FAMILY  **D**. OTHERS |
| 54. | HOW OFTEN DO YOU GAMBLE IN A WEEK? | **A.** NEVER  **B.** ONCE   **C.** TWICE   **D.** MORE THAN ONCE |
| 55. | HAVE YOU BEEN PREVIOUSLY SCREENED OF DISORDER AS A RESULT OF NEGATIVE LIFE EVENTS EXPERIENCED | **A.** YES  **B.**  NO   **C.** I DON'T KNOW |
| 56. | WHAT IS YOUR CURRENT CGPA RANGE? | **A.** <1.0  **B**. 1.1-2.5  **C.** 2.51- 3.9  **D.**  4.0 AND ABOVE |

| S/N | QUESTIONS | NONE | SOME BUT LESS THAN ONE HOUR | 1HOUR BUT LESS THAN 3 HOURS | 3 HOURS OR MORE |
|---|---|---|---|---|---|
| 57. | PHYSICAL EXERCISE SUCH AS SWIMMING ,JOGGING, AEROBICS, FOOTBALL, TENNIS, GYM AND WORKOUT | | | | |
| 58. | CYCLING INCLUDING CYCLING TO SCHOOL AND DURING LEISURE TIME | | | | |
| 59. | WALKING, INCLUDING WALKING TO SCHOOL, WORK, SHOPPING, AND FOR PLEASURE | | | | |
| S/N | | Never | rarely | Occasionally | Most nights |
| 60. | DO YOU HAVE TROUBLE FALLING ASLEEP? | | | | |
| 61. | DO YOU HAVE TROUBLE STAYING ALSEEP? | | | | |
| 62. | DO YOU TAKE ANYTHING TO HELP YOU SLEEP? | | | | |
| 63. | DO YOU USE ALCOHOL TO HELP YOU SLEEP? | | | | |
| 64. | DO YOU FEEL SAD, IRRITABLE OR HOPELESS? | | | | |
| 65. | DO YOU FEEL NERVOUS OR WORRIED? | | | | |
| 66. | HOW OFTEN DO YOU SLEEP LATE AND WAKE UP EARLY | | | | |
| 67. | DO YOU GET UP TO 5HOURS OF SLEEP DAILY | | | | |

**INFORMED CONSENT**

Good day Sir/Ma,

My name is DAVIES, Moyosore Samuel, I am a Postgraduate student in the Department of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan. The aim of this study is to investigate on the "**Determinants of depression among undergraduates in Ibadan Metropolis".** This study will yield information that may be used in developing policy and means to curb factors associated with development of depression. There is no right or wrong answer, what is desired of you is your truthful and honest responses. Please note that the completion of this questionnaire is entirely voluntary. All information gathered as a result of your participation in this study will be treated with utmost confidentiality and will be used strictly for research purposes only. The interview will take about 30 minutes, at most, of your time.

Thank you for your anticipated cooperation.

I have read and understand the consent form and voluntarily agree/disagree to participate in the study by ticking [√] in the appropriate box below:

1. Agree [   ]          2. Disagree [   ]


-----------------------          ----------------------
Signature                        Date

**Table 1**

**DATA ANALYSIS MATRIX**

| S/N | OBJECTIVES | DEPENDENT VARIABLE | INDEPENDENT VARIABLE | TOOLS FOR DATA ANALYSIS |
|---|---|---|---|---|
| 1. | TO DETERMINE THE PREVALENCE OF DEPRESSION AMONG UNDERGRADUATES IN IBADAN | DEPRESSION | N/A | DESCRIPTIVE STATISTICS(FREQUENCY, PROPORTION) |
| 2. | TO ASSESS KNOWLEDGE OF DEPRESSION AMONG UNDERGRADUATES IN IBADAN | DEPRESSION | | FREQUENCY, PERCENTAGES |
| 3. | TO IDENTIFY ASSOCIATION BETWEEN KNOWLEDGE AND DEPRESSION AMONG | DEPRESSION | KNOWLEDGE OF DEPRESSION | BIVARIATE LOGISTIC ANALYSIS (CHISQUARE) |

| | | | | BINARY LOGISTIC REGRESSION |
|---|---|---|---|---|
| | UNDERDRADUATES IN IBADAN | | | |
| 4. | TO IDENTIFY FACTORS ASSOCIATED WITH DEPRESSION AMONG UNDERGRADUATES IN IBADAN. | DEPRESSION | SOCIO DEMOGRAPHIC, SOCIAL FACTORS, HEALTH FACTORS, ACADEMIC PERFORMANCE | BIVARIATE LOGISTIC ANALYSIS (CHISQUARE) BINARY LOGISTIC REGRESSION |