

**DEPRESSION AND ITS ASSOCIATED FACTORS AMONG STUDENTS OF CLARKE
INTERNATIONAL UNIVERSITY, KAMPALA UGANDA**

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DECLARATION

I, Owachi Deirdre, declare that work presented in this dissertation has not been submitted for any other degree award to any other university before. The views expressed herein are mine unless otherwise stated, and where such has been the case, acknowledgments and references have been quoted.

AUTHOR



28/01/2022

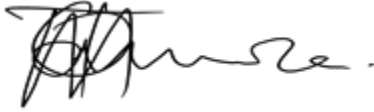
Sign.....

Date

APPROVAL

This is to declare that the study titled ‘depression and its’ associated factors among students of Clarke International University, Kampala Uganda’ was conducted under my keen supervision and has met the standard of Clarke International University.

SUPERVISOR:



28/01/2022

Sign.....

Date.....

Maurice Osire Tukei

DEDICATION

I dedicate this research to my parents; Mr. William Owachi, Mrs. Harriet Owachi, Mrs. Grace Angeyo Kusiima, and Mr. Francis Kusiima, for their continuous support, words of encouragement, and prayers throughout the years.

I also dedicate this work to my beloved siblings: Dr. Darius, Delia, Dion, Eric, Winnie, Ruth, and Anna, for believing in me, and encouraging me to aim and achieve more.

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LIST OF ABBREVIATIONS

BDI.....	Beck Depression Inventory
CES-D.....	Centre for Epidemiological Studies Short Depression scale
DASS.....	Depression Anxiety Stress Scale
PHQ.....	Patient Health Questionnaire
SDS.....	Self-Rating Depression Scale
WHO.....	World Health Organization
PTSD.....	Post-Traumatic Stress Disorder
PUI.....	Problematic Use of the Internet

OPERATIONAL DEFINITIONS

- i. **DEPRESSION:** This is defined as a common mental disorder consisting of characteristics such as depressed (sad) mood, loss of interest, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration (WHO, 2012), for a consistent period of two weeks
- ii. **SUICIDAL IDEATION:** refers to thinking about suicide or the desire to take one's own life. It is categorized as passive suicidal ideation (one wishes to die but has no plans on committing suicide) and active suicidal ideation (one thinks about committing suicide and plans on how to do it).

ABSTRACT

Introduction: Over the years, mental health disorders such as depression have increasingly become a major public health concern. University students are at a crucial transitional stage in their lives, where they experience various personal, social, and economic challenges. These challenges predispose them to depression, affecting an individual's ability to function at school or work or cope with daily life.

Objective: This study was aimed at assessing the prevalence of depression and its' associated factors among students of Clarke International University, Kampala Uganda.

Methodology: An analytical cross-sectional study design was used. Self-administered research questionnaires were used for data collection, and the BDI II tool was used to measure the prevalence of depression. A total of 361 students from the four main faculties of the university participated in the study.

Results: The overall prevalence of depression was 16.1%. In terms of severity, 10.8% had mild depression, 3.6% had moderate depression and 1.7% had severe depression.

Conclusion: The study revealed that depression among the students was significant to the academic performance of the student as a demographic factor, and family history with depression, conflicts within the family, and student nationality status as social factors. There was no association between depression and economic factors.

Recommendations: The university should develop new and culturally sensitive innovations aimed at managing depression among the students.

CHAPTER ONE

1.0 INTRODUCTION

Depression is one of the leading causes of disability worldwide and a major contributor to the overall burden of disease (WHO, 2020). This chapter consists of six subparts which are; background of the study, problem statement, objectives, research questions, significance and conceptual framework.

1.1 Background of the study

Depression can be long-lasting or recurring, resulting in impairment of an individual's ability to function at school or work or cope with daily life (WHO, 2017). Globally, more than 264 million people of all ages suffer from depression (WHO, 2020), an increase of more than 18% between 2005 and 2015 (WHO, 2017). Depression affects an estimated one in 15 adults (6.7%) in any given year, and one in six people (16.6%) will experience depression at some time in their life. Depression can strike at any time in life, however, on average it first appears during late teens to mid-20s, with women more likely to suffer from it than men (American Psychiatric Association, 2017).

University students are a group of people at a critical transitional stage, which is from adolescence to adulthood and can tend to be one of the most stressful times in a person's life (Sarokhani *et al.*, 2013). These students experience many challenges including independent living, academic stress, planning for future careers, and these challenges predispose the students to depression (Ashraful Islam *et al.*, 2018). Studies have reported that the prevalence of depression among university

students is higher than that of the general population, with wide variations ranging from relatively low rates of around 10% to high rates between 40% to 80% (A. K. Ibrahim *et al.*, 2013).

In a study that was carried out among university students from three European countries, the prevalence of depression was 39.0% among the French, 47.0% among the Moldavian, and 35.8% among the Rumanian (P Habibirwe *et al.*, 2018). Additionally, in a survey that was carried out among undergraduate USA college students, the proportion of students suffering from severe depression rose from 9.4% in 2007 to 21.1% in 2018. The rate of moderate depression among the same students rose from 23.2% in 2007 to 41.1% in 2018 (Duffy, Twenge and Joiner, 2019). In China, a systematic review and meta-analysis reported an overall prevalence of depression of 28.4% among the university students (Gao *et al.*, 2020), 19.9% among medical students from 33 universities within the country (Pan *et al.*, 2016), and 11.7% was reported from a study that investigated the prevalence and socio-demographic correlates of depression among Chinese university students (Chen *et al.*, 2013a). In other international/foreign countries, the prevalence of depression reported among university students was 53.43% among Pakistan undergraduates (Ghayas *et al.*, 2014), 52.3% among Vietnam students (Tuyen *et al.*, 2019), 50.6% among students in Cambodia, and 9.3% major depression among students of Sri Lanka (Amarasuriya, Jorm and Reavley, 2015). In Afghanistan, a study reported that university students suffered from different forms of depression. The prevalence of moderate depression reported among the students was 30%, severe depression was 12% and extreme depression was 3% (Bakhtyari, Mutamed and Bena, 2020), whereas, in Bangladesh, the reported prevalence of depression among university students in the country was 69.5% among first-year students (Rahman *et al.*, 2020) and 47.7% among International students that studied in universities within the country (Jamilah *et al.*, 2020).

In African universities, different studies have also been conducted among university students from different countries in the continent. A systematic review study that investigated the prevalence and factors associated with depression among medical students in Africa reported an overall prevalence of depressive symptoms ranging from 23.3% to 76.5% (Ngasa *et al.*, 2020). The data that was used for this systematic review was obtained from studies that were carried out in Egypt, Cameroon, South Africa, and Nigeria. In Nigeria, different forms of depression were reported with a prevalence of 7.0% severe depression and 25.2% moderate depression among university students of Western Nigeria (Peltzer *et al.*, 2013a), and an overall prevalence of 5.3% among medical students from the University of Port Harcourt (Nkporbu AK *et al.*, 2019). In Ethiopia, reports of the prevalence of depression were 28.2% among students of Jimma University (Ahmed *et al.*, 2020) and 32.2% among the students from Ambo University located in West Ethiopia (Birhanu and Hassen, 2016). In other African countries, the prevalence of depressive symptoms among the students was 5.62% for severe depression and 35.7% for moderate depression among Kenyan students (Othieno *et al.*, 2014), 48.5% among first-year medical Egyptian students (Abdallah and Gabr, 2014), 39.2% among Ghanaian university students (Oppong Asante and Andoh-Arthur, 2015a), 25.0% and 24.7% among medical students and first-year students in South Africa respectively (Bantjes *et al.*, 2019; Van Der Walt *et al.*, 2020).

In Uganda, 34.8% screened positive for psychopathology (which included depression) in a study that was carried out to assess psychosocial problems and the development of psychopathology among Ugandan university students (Nsereko *et al.*, 2014). A survey that was conducted at the 10 colleges that make up Makerere University Uganda reported that 67% of the total number of students at the university live with depression (Nelson Bahati, 2019). Additionally, in a study that was carried out assessing dating-related stress, depression, and anxiety among Ugandan university

students, it was reported that university students who had ever experienced dating-related stress were more than five times likely to suffer from depression compared to students who had never experienced dating-related stress (Muhwezi, Kamatenesi-mugisha and Ainamani, 2020).

However, the prevalence of depression among university students is increasing because two-thirds of young people do not seek help for mental health problems (Sarokhani *et al.*, 2013) due to the stigma surrounding these health problems. Besides, because university students have a potential influence on their families, communities and are a potential contribution to the country's future workforce for any given country (Ashraful Islam *et al.*, 2018), it is important to study their depression. Therefore, the purpose of this study is to determine the prevalence of depression and its associated factors among students of Clarke International University in Uganda.

1.2 Problem statement

According to a report from the World Health Organization (2017), Uganda was among the top six countries with the highest number of people suffering from depressive disorders out of the 50 African countries (1.7 million (4.6%) Ugandans suffer from depressive symptoms). The young people (between 18-32 years) in Uganda are reported to likely face a high risk of undiagnosed mental health issues such as depression, anxiety, eating disorders, due to the stigma surrounding such illnesses (Namara, 2017).

In a study that was carried out to assess the psychosocial problems and development of psychopathology among Ugandan university students, 34.8% screened positive for psychopathology, of which depression was among (Nsereko *et al.*, 2014). Additionally, in a survey that was conducted at the 10 colleges that make up Makerere University Uganda, it was reported that 67% of the total number of students at the university live with depression (Nelson Bahati, 2019).

However, there exists insufficient information regarding the associated factors of depression among Ugandan university students. In the study that was carried out by Nsereko *et al.*, (2014), the associated factors investigated were limited to traumatic experiences, academic problems, and emotional problems. This study, therefore, seeks to fill the information gap regarding the demographic, social and economic factors associated with depression among Ugandan university students.

Depression among these students, if not addressed, has a potential to progress into chronic mental illness, which will limit opportunities for the students to live a full-filling adult life.

1.3 Objectives

General objective

To determine the prevalence of depression and its associated factors among students of Clarke International University, Kampala Uganda.

Specific objectives

- i) To determine the prevalence of depression among the students of Clarke International University, Kampala Uganda.
- ii) To establish the demographic factors associated with depression among the students of Clarke International University, Kampala Uganda.
- iii) To investigate the social factors associated with depression among the students of Clarke International University, Kampala Uganda.
- iv) To investigate the economic factors associated with depression among the students of Clarke International University, Kampala Uganda.

1.4 Research questions

- i) What is the prevalence of depression among the students of Clarke International University?
- ii) What are the demographic factors associated with depression among the students of Clarke International University?
- iii) What are the social factors associated with depression among the students of Clarke International University?
- iv) What are the economic factors associated with depression among the students of Clarke International University?

1.5 Significance / Justification

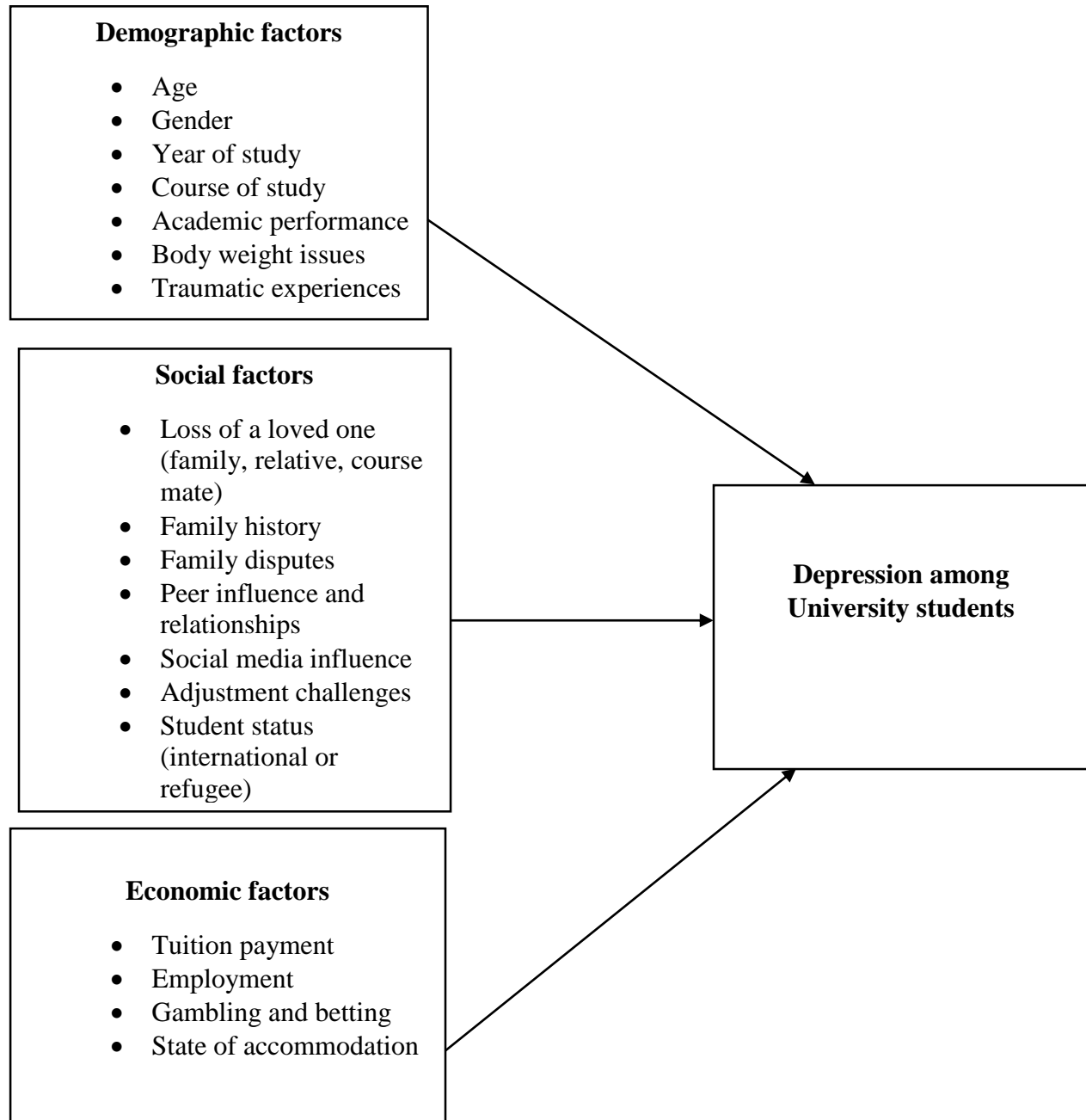
With mental health among university students growing as a public health concern, understanding depression (which is a common mental disorder among university students) and its associated factors among these students is paramount. This is because university students have the potential influence on their families, communities, and are a potential contribution to the future workforce of any given country.

The information obtained from this study will be relevant to both the students and the university providing a more understanding regarding the mental health status of the students at Clarke International University. In addition, basing on the information from the study, the university will be able to create strategic decisions to mitigate this mental disorder and the consequences that arise from not having it treated among its students.

The information obtained from the study can also be used as a basis for further research.

1.6 Conceptual framework

Figure 1: Conceptual framework



Source: *Developed by the researcher based on reviewed literature*

Narrative of the framework

The conceptual framework above is a diagrammatic representation showing the dependent variable which is depression, and the independent variables which are the demographic, social, and economic factors.

Demographic factors such as year of study, course of study, academic performance, etc., can lead to depression among university students. For instance, various studies have shown that the demands and challenges experienced with the course of study, year of study, students' academic performance leads to stress, which gradually develops into depression.

The economic factors such as tuition payment, employment, state of accommodation, etc., also lead to depression among university students. These factors attempt to explain the effect of monetary issues on the state of students' mental health. For instance, the stress arising from living independently (state of accommodation), as a result of financial constraints leads to chronic stress, which eventually develops into depression among these students.

Social factors leading to depression among university students include family history, loss of a loved one, peer influence and relationships, family disputes, and student status. These factors show the influence of family, personal relationships, and effects of loss, on student mental health. For example, the loss of a loved one leads to grieving, which can, later on, result in depression, especially when the student fails to cope with the loss.

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter focused on the review of other relevant kinds of literature in relation to the prevalence of depression among university students and in relation to the specific objectives of this study which are, the socio-demographic, social and economic factors associated with depression among university students.

2.1 Prevalence of Depression among University students

Depressive symptoms can vary from mild to severe, and these include; sad (depressed) mood, loss of interest or pleasure in activities once enjoyed, changes in appetite, trouble sleeping (oversleep or under sleep), loss of energy or increased fatigue, feeling of worthlessness or guilt, and suicidal ideation (American Psychiatric Association, 2017). For a person to be diagnosed with severe depression (which is also referred to as Major depressive disorder), he/ she must have at least five or more of the above symptoms, with at least one of the symptoms being sad/depressed mood or loss of interest/pleasure (American Psychiatric Association, 2013), for a consistent period of two weeks. Also, a person diagnosed with moderate depression (sometimes referred to as Subclinical depression), displays some of the above relevant clinical depressive symptoms, although they do not meet the standard diagnostic criteria for severe depression. In other words, these individuals have at least one of the core symptoms of depression, with another symptom, but the symptoms do not add up to four in total (Cuijpers *et al.*, 2014).

According to Ibrahim *et al.*,(2013), studies have reported wide variations of the prevalence of depression among university students, from relatively low rates of 10% to high rates between 40% to 80%. This prevalence is increasing because young people do not seek help regarding mental

health issues (Sarokhani *et al.*, 2013). For instance, the prevalence of severe and moderate depression among United States undergraduate students between 2007 to 2018 had risen from 23.2% in 2007 to 41.1% in 2018 (Joseph, 2019).

One of the most common tools that have been used to assess depression among university students is the CES-D. This tool uses self-report as the form of administration and contains items in line with the characteristics of depression as stated earlier. The CES-D has two versions, the 10 item, and the 20 item. In a study that was carried out among Kenyan university students, using the CESD-10 tool, out of the 923 students sampled, the prevalence of severe depression was 5.62%, with 5.3% of the males and 5.1% of the females suffering from this condition (Othieno *et al.*, 2014). In the same study, the prevalence of moderate depression among the students was 35.7%, implying that the majority of the students had moderate depression. Ashraful Islam *et al.* (2018) reported a prevalence of 4.4% of severe depression and 25.0% of moderate depression among Malaysian university students, using the same CESD-10 tool. Additional studies that used the CESD-10 tool to measure depression include; a study that was carried out among university students of Western Nigeria and another study that was carried out among university students from 26 low, middle and high-income countries (Peltzer *et al.*, 2013). The prevalence of severe and moderate depression was 7.0% and 25.2% respectively among the Western Nigerian students (Peltzer *et al.*, 2013), and 12.8% and 24.0% respectively among the students from the 26 low, middle and high-income countries (Peltzer and Pengpid, 2015). These studies coincided with the study that was carried out among Kenyan students, with moderate depression being more prevalent among university students than severe depression (Othieno *et al.*, 2014). Additionally, in a study that was carried out in Vietnam among the students of Tra Vinh University, using the CESD-20 (which contains more questions than version 10), the overall prevalence of depression was 52.3%.

The study further reported that moderate depression was more prevalent among the students with results of 24.2% moderate depression and 20.7% major depression (Thi Hong Tuyen, Quang Dat and Thi Hong Nhung, 2019). These results also coincided with the above studies that used the shorter version of the tool.

However, in a multi-university study that was carried out among 2000 medical students and residents using the CESD-20 tool, it was reported that the prevalence of severe depression was 12% and moderate depression was 9.2% (Goebert *et al.*, 2009). This study contrasted with other studies where moderate depression was more prevalent than major depression among university students (Peltzer *et al.*, 2013b, 2013a; Othieno *et al.*, 2014; Ashraful Islam *et al.*, 2018; Thi Hong Tuyen, Quang Dat and Thi Hong Nhung, 2019). A possible reason for this contrast in results is that whereas the other studies included all university students and did not limit it to only one particular course of study, this study was limited to only medical students. Additionally, due to reasons such as high competitiveness at medical school, the heavy workload related to the medical course making students have little or no time to seek treatment regarding their mental health (American Medical Students Association, 2018), predisposes medical students to a high risk of developing major or severe depression. However, it should be noted that one of the limitations that were stated in this medical students' study was that the CES-D tool could not differentiate between depressive symptoms and burnout symptoms. Burnout syndrome is characterized by feelings of energy depletion, increased mental distance from one's job or daily activities (lack of concentration), and reduced efficacy (WHO, 2019).

Another common tool that was used to measure depression among university students is the BDI tool. This tool is a self-report rating inventory, consisting of 21-items that measure characteristic attitudes and symptoms of depression. Various studies have reported different results using the

same BDI tool. For instance, in a study that was carried out to assess the prevalence of depression among Turkish university students, over one in five students (21.8%) had depression (Arslan *et al.*, 2009). Additionally, in a study that was carried out among medical students in 33 universities in China, the overall reported prevalence among the students was 19.9% (Pan *et al.*, 2016). However, unlike most studies, both of these studies generalized the prevalence of depression, (the prevalence of severe and moderate depression among the sampled students was not specified), yet one of the advantages of the BDI tool is that it allows one to determine the severity of depression among the selected study population (Arslan *et al.*, 2009; Pan *et al.*, 2016).

Additional studies that used the same BDI tool specified the severity of depression among the students. In another study that was carried out among Chinese university students, out of 5,245 students that were sampled, the overall prevalence of depression among the students was 11.7%. Among these, it was reported that the prevalence of moderate depression was 8.4% and severe depression was 3.3% (Chen *et al.*, 2013a). It should be noted that while both these studies were carried out among Chinese university students, the study on the medical students reported a higher prevalence compared to the study on Chinese university students in general. Possible reasons for this difference in prevalence include; specificity of the study to only medical students, the high competitiveness in the medical school, and the high demands that come with the medical course compared to other different courses. Kumar, Jain and Hegde (2012) reported an overall prevalence of depression of 71.25% among Indian university students of the medical college in Karnataka. Among those with depression, the majority had moderate and mild depression (29.3% and 27.8% respectively). Also, the prevalence of severe and very severe depression among the students was 7.5% and 6.7% respectively. Other studies that used the BDI tool include; a study that was carried out among Ethiopian students from Jimma University and a study that was carried out among

students from Afghanistan universities. In the Ethiopian study, the reported overall prevalence of depression was 28.2%, with 9.9% moderate depression and 4% severe or major depression (Ahmed *et al.*, 2020). The study that was carried out among Afghanistan students was conducted in three different universities and it was reported that the prevalence of moderate depression among the students was 30%, severe depression was 12% and extremely severe depression was 3% (Bakhtyari, Mutamed and Bena, 2020). In all these studies, the prevalence of moderate depression is higher than that of severe or major depression among the students. This coincides with the observation that was made from results obtained from most of the studies that used the CES-D tool.

According to a study that was carried out among Cameroon medical university students, the overall 30.6% were reported to have depression. With regards, the severity of depression among these students, the prevalence of severe, moderate, and mild depression was 0.8%, 3.4%, and 26.4% respectively (Ngasa *et al.*, 2017). However, it should be noted that the tool that was used in this study was the PHQ-9 item questionnaire, which differs from the BDI and CES-D tools in the prior discussed studies. The PHQ-9 is also a self-administered tool that is commonly used in clinical settings, and measures depression by scoring each of the nine DSM-IV criteria (depression characteristics) as “0” for not at all to “3” nearly every day. As observed in the study by Ngasa *et al.*, (2017), one of the advantages of the PHQ-9 is that it allows one to monitor the severity of depression among the selected study sample. In a study that was carried out among first-year university students in Bangladesh using the PHQ-9 tool, the reported overall prevalence of depression among the students was 69.5%, with a 50.2% moderate depression prevalence and 4.0% severe depression prevalence (Rahman *et al.*, 2020). Additionally, in a study that was conducted among health science students from a public university in Malaysia, the overall prevalence of

depression among the students was 36.4%. The reported prevalence of moderate depression among these students was 26.0% and severe depression was 2.2% (Abdul Rahman M Fata Nahas, Ramadan M Elkalmi, Abdulkareem M Al-Shami, 2019). The study that was carried out among South African medical students also reported a 36.4% overall prevalence of depression, with a prevalence of 25.0% for severe depression (Van Der Walt *et al.*, 2020). However, even though the PHQ-9 is also one of the tools that studies have opted to use, it is a tool that is normally used in a clinical setting.

In a study that was carried out among first-year Egyptian medical students, the overall prevalence of depression was 63.6%, and moderate depression was 48.3% among the sampled students. (Abdallah and Gabr, 2014). The tool that was used to measure depression was the DASS-21. This tool is a set of three self-report scales, that are designed to measure the emotional states of depression, anxiety, and stress in a person. Another study that opted for a different tool was carried out among undergraduate Pakistan university students. The tool used was the SDS, which is a self-administered tool, consisting of 20 items that measure the severity of depression. The study reported a 53.43% overall prevalence of depression, with 8.7% moderate depression among females and 7.69% moderate depression among males (Ghayas *et al.*, 2014).

The prevalence of depression among university students varies from country to country and the most commonly used tools in these studies are the CES-D, BDI, and PHQ-9. Reasons for the variations in findings can include; the selected tool used in the study to measure depression (as some tools have more items than others), and the difference in study goals/objectives. Basing on most reviews in line with the prevalence of depression among university students, it is observed that the majority of the students suffer from moderate depression compared to severe depression, indicating that moderate depression is usually more prevalent among university students. Cuijpers

et al., (2014) suggested that moderate or subclinical depression is relevant because it has a very high risk of developing into severe depression or major depressive disorder if not diagnosed or treated early enough.

2.2 Demographic Factors and Depression among Students

2.2.1 Age

Some studies have shown that age is directly linked to depression among university students. For instance, according to a study that was carried out assessing the prevalence and socio-demographic correlates of depression among Chinese university students, it was reported that the possibility of a student having depressive symptoms was significantly higher in older university students (above 25 years) than in younger university students. The age range that was used in this study was between 16- 35 years (Chen *et al.*, 2013b). Another study whose results coincide with the ones obtained from the Chinese university students was carried out among Malaysian university students. The study reported that depression was significantly higher among the older Malaysian students between 20-24 years (The standard deviation of depression was 11.41), compared to the younger students between 18-19 years (standard deviation of depression was 9.15) (Shamsuddin *et al.*, 2013).

A possible explanation for these results is that older students tend to have more responsibilities such as families, jobs, economic pressures, etc, compared to younger students. Additionally, the older senior university students tend to have a higher workload and stress as a result of worry about future uncertainties as they approach graduation and post-education life.

2.2.2 Gender

According to WHO, females are at greater risk of suffering from depression compared to men (WHO, 2017). One of the major cited explanations for this is the hormonal differences in women

(American Institute of Stress, 2014). These hormonal changes may be a trigger for depression and usually occur particularly during puberty, before menstruation, following pregnancy, and at perimenopause (Albert, 2015). Additional possible reasons as to why depression is more prevalent in women include; psychological explanations such as women being more invested in relationships than men and relationship problems are more likely to affect women more, and sociocultural explanations such as women being more likely to seek a depression diagnosis compared to men (Burton, 2012).

Among university students, some studies concluded that the difference in depression rates between females and males was not statistically significant (Othieno *et al.*, 2014; Ashraful Islam *et al.*, 2018). However, some studies were gender-specific, for example, a study was carried out to assess the prevalence and predictors of depression and anxiety among female medical students at King Abdulaziz University in Saudi Arabia. The study reported high rates of 14.7% for severe depression and 21.8% for moderate depression among the female students (N. Ibrahim *et al.*, 2013). Additionally, a study that was done among university students from West Ethiopia revealed that females were four times more likely to be depressed than males (Birhanu and Hassen, 2016). However, the study that was carried out among Chinese undergraduate medical students from 33 universities within the country, reported a higher prevalence of depressive symptoms among the male students (25.4% prevalence among the males and 16.3% prevalence among the females) (Pan *et al.*, 2016). The stated reason for this difference in results was that Chinese male students experience a higher pressure to obtain excellent academic performance, and secure a good-paying job. This is due to the still-existent general mentality in Chinese society, that men should earn more than women and take the financial responsibility of the family.

2.2.3 Year of study

In many of the researches regarding the mental health status of university students, the year of study of the students plays an important role in their mental health. In some studies, first-year students reported higher rates of depression compared to continuing students. For instance, in the study that was carried out among undergraduate students of Makerere University, the prevalence of depression among the first-year students was 16.2% (Ovuga, Boardman and Wasserman, 2006). Additionally, among the Kenyan university students, first-year students had the highest rate of severe and moderate depression (7.3% and 33.5% respectively) compared to continuing students at the institution (Othieno *et al.*, 2014). First-year students are at a high risk of experiencing depression because of factors such as a change in schedule from high school to university, adopting to stay with a roommate, independent living, the need to fit in (peer influence), depressive symptoms transferred from high school, etc. However, some studies contrasted with first-year students having higher rates of depression compared to continuing students. For instance, among the Malaysian university students, second-year students reported the highest rates of severe depression (9.2%) compared to students of other years of study (Ashraful Islam *et al.*, 2018). A possible reason for these results is that by second year, a student begins to experience stress and pressure regarding the demands of the course of study.

2.2.4 Course of study

As regards the course of study as a factor associated with depression among university students, studies have indicated that the course and demands associated with the course play a big role in the mental health status of the student. Studies carried out among medical university students reported that students studying medicine are at a higher risk of experiencing depression compared to students of other study courses (Goebert *et al.*, 2009; Kumar, Jain, and Hegde, 2012; Onyishi,

Talukdar and Sanchez, 2016). Reasons for the high prevalence of depression among medical students include; high competitiveness at medical school, the heavy workload related to the course making students have little or no time to seek treatment regarding their mental health (American Medical Students Association, 2018). Also, there is a lot of stigma against treating depression among medical students. A depressed medical student is considered as a weak student, who cannot handle the course and the demands it comes with. However, in the study that was carried out among Kenyan university students, the highest rates of depression were reported among students from the college of education and external studies. According to the study, possible reasons stated for the contrast in results was that the majority of the students from this college were older (and as explained earlier, age is one of the socio-demographic factors associated with depression) and a large proportion of these students resided out of university premises(Othieno *et al.*, 2014).

2.2.5 Academic performance

In some studies where academic performance was included as a socio-demographic factor associated with depression, students who reported not satisfied with their academic performance expressed higher rates of depression compared to students who were satisfied with their academic performance(Othieno *et al.*, 2014; Ngin *et al.*, 2018). This is because of reasons such as fear/worry to disappoint parents or guardians with their academic performance, the worry of course unit retakes and failure to graduate in time due to poor performance. In addition, according to Nsereko *et al* (2014), students that were exposed to psychosocial problems (which also included academic performances), developed psychopathology manifesting as depression and anxiety.

2.2.6 Bodyweight issues

Bodyweight and its perceptions play a vital role in a person's physical and mental well-being. A negative perception of one's current weight status can lead to unhappiness, insecurity, and stress,

which eventually manifests as depression. In a study that was carried out among African and Caribbean university students, assessing the correlation of depression symptoms with body weight and weight perception, it was reported that perceived rather than measured overweight predicted depressive symptoms in male students with normal weight. For females, the study reported that perceived overweight predicted depressive symptoms regardless of the actual body weight (Pengpid and Peltzer, 2017). This is because females are more sensitive and insecure about their body weight compared to males.

According to a study that was carried out among female undergraduate medical students in Malaysia, assessing the prevalence and inter-relationship of negative body image, depression, and susceptibility to eating disorders, it was reported that 65.5% of the students were depressed and 6.3% of the depressed were susceptible to eating disorders. The study also reported that although there was a positive relationship between depression and eating disorders, there was a negative relationship between depression and body image (Manaf, Saravanan and Zuhrah, 2016). In the study, depression was a mediator between body image and eating disorders among university students.

2.2.7 Traumatic experiences

A university student that once experienced or is experiencing a traumatic event, in the form of physical or emotional abuse is more likely to suffer from depression compared to students without traumatic experiences. Studies that included traumatic experiences as a factor associated with depression reported high depressive rates among students that suffered from post-traumatic experiences compared to other students (Bayram and Bilgel, 2008; Nsereko *et al.*, 2014; Othieno *et al.*, 2014; Ashraful Islam *et al.*, 2018). Basing on these studies, university students experienced traumatic events in terms of physical child abuse while growing up, sexual child abuse, forced to

have sex, and emotional abuse. The trauma obtained from experiencing these traumatic experiences when not treated often affects one's mental health status, and in most cases, this manifests as conditions such as depression, severe anxiety, and suicidal ideation.

2.3 Social Factors and Depression Among Students

2.3.1 Loss of loved one

Grief as a result of the loss of a loved one can trigger depression among people (Nall, 2017) and if not taken care of early enough, it can result in major depression, especially if the grief is prolonged.

Okun (2015) stated that in cases where a person previously struggled with unacknowledged or acknowledged depression, the death or loss of a loved one can be a catalyst that brings the depression foreground. Among university students, the loss of close friends, fellow classmates, and relatives can lead to grief. However, if this grief is prolonged (for more than three months), the person is at a higher risk of suffering from depression. N. Ibrahim *et al.*, (2013), reported high rates of depression (28.2%) among female medical students who had lost a relative or a close friend during the time of the study.

2.3.2 Family history

Reports have indicated that if a family member from one's family (parent, sibling, or grandparent) has ever suffered from depression, that person has 2 or 3 times greater risk of developing depressive symptoms or suffering from depression compared to an average person (Tayim, 2017). According to a 30-year study that was carried out of 3 generations at high and low risk of depression, it was reported that the grandchildren (third generation), with 2 generations suffering from severe/ major depression, had high rates of a variety of psychiatric disorders, depression inclusive (Weissman *et al.*, 2016).

In many studies carried out among university students, family history with depression was not investigated or if it was investigated, the researchers concluded that the results were not statistically significant. However, in the study that was carried out among medical students in India, it was reported that the prevalence of depression was significantly more among students with a family history of depression (Kumar, Jain and Hegde, 2012).

2.3.3 Family disputes/ conflicts

Students with families experiencing disputes or conflicts are at a higher risk of developing depressive symptoms compared to students in families having little or no disputes. This is because family disputes create an environment that can harm one's psychological health.

According to a study that was carried out to examine the role of family environment in depressive symptoms among university students in China, family conflict was positively associated with depression and it appeared to play an important role in the occurrence of depressive symptoms among the students in such families. The correlation between conflict in families and depressive symptoms was 0.288 at a significance of 0.05 (Yu *et al.*, 2015). It was further reported in the study that the students that experienced high levels of family conflict reported more depressive symptoms.

In high family conflict environments, family members lack proper communication, and as a result, there is a failure to express emotions and opinions openly (Yu *et al.*, 2015). This creates a less family-supportive environment which creates grounds for the development and manifestation of depression among the students.

2.3.4 Peer influence and relationships

The quality of relationships a person has with people in their life can create either a positive or a negative impact on one's mental health status. Positive relationships (with qualities such as support, care, etc from peers, loved ones, relationship partners, spouses) tend to create and predict a decrease in depressive symptoms among individuals while negative relationships (with qualities such as little or no support and care, a negative influence which results into bad habits such as alcoholism, smoking, etc) tend to create and predict an increase in depressive symptoms among individuals. According to a study carried out among Ugandan university students assessing dating-related stress, depression, and anxiety, it was reported that the students who experienced dating-related stress were five times more likely to develop depressive symptoms compared to students who did not experience dating-related stress. The odds ratio recorded for developing depressive symptoms as a result of dating-related stress among the sampled students was 5.9 (Muhwezi, Kamatenesi-mugisha and Ainamani, 2020).

On the other hand, some studies have reported that university students in committed dating relationships and marriage express less depressive symptoms compared to single students. In a study that was carried out to assess the impact of committed dating relationships and mental health among undergraduate college students, it was reported that the involvement in a committed relationship compared to being single, was associated with less depressive symptoms for the undergraduate women but not in men (women in committed relationships reported less depressive symptoms than single women and men in committed relationships reported more depressive symptoms than single men) (Whitton *et al.*, 2013). A possible explanation for these findings is that societal stigma and the pressure of being a single university student has more impact on women than in men hence the higher depressive symptoms in single women. Additionally, young women

report that they would prefer traditional dating to ‘hooking up’ (having a one night or many sexual encounters with a person without being in a committed relationship with the person). This is because single women, but not single men, may suffer from negative emotional reactions resulting from hooking up and the unfulfilled wishes of being in a relationship, and this may elevate depressive symptoms (Whitton *et al.*, 2013). A possible explanation as to why men in committed relationships are more depressed than single men is that some men, especially unmarried yet in committed relationships while in their university days may observe the relationship as more of a “prison”, limiting him from doing some activities he would have done freely if he was single.

2.3.5 Social media influence

Social media refers to computer-based technology that facilitates sharing ideas, thoughts, and information through the building of virtual networks and communities (E.Dollarhide, 2019). Social media by design is solely internet-based, and it gives its users access to quick electronic communication of content. This content can include personal information, documents, videos, and photos. The extensive use of social media (often defined as behavioral addiction) can lead to impairment of other important life areas as a result of devoting so much time and effort to social media (Haand and Shuwang, 2020). This consistent use of social media is associated with a decrease in happiness, which eventually leads to an increase in depression (Ahmad, Hussain and Munir, 2018).

In a study that was carried out assessing social networking and depression among university students, it was reported that the students that spent more time on social media were more depressed than those that spent less time on social media (severe depression was 11.38% in males and 10.38% in female social media users and moderate depression was 21.95% in males and 16.88% in females). Additionally, the study reported that the students who use social media to

obtain health information and play games were more depressed than the students who used social media to chat with family and friends (Ahmad, Hussain and Munir, 2018). A possible reason for this is that the health information obtained from social media is not a hundred percent reliable and accurate compared to the health information obtained from a health expert. As a result, false health information has a great potential of affecting a person psychologically. In another study that was carried out among university students in Afghanistan, the findings indicated that there exists a positive correlation between social media addiction and depression, and depression significantly predicts social media addiction (Haand and Shuwang, 2020). This implies that students experiencing depressive symptoms and are social media users are most likely to develop an addiction to social media use.

2.3.6 Adjustment challenges

Reports have indicated that some university students (especially first-year students) experience adjustment challenges such as living independently, living with a roommate, etc, while coping with the university lifestyle. In a study that was carried out among Ethiopian university students, the prevalence of adjustment problems among first-year students was 42.5% (Belay Ababu *et al.*, 2018). These challenges often manifest into stress which eventually develops into depression among the students.

Adjustment challenges can either be personal or social (when a person faces challenges with adjusting socially for reasons such as being in a new environment, being an international student in another country, etc.). In a study that was carried out among undergraduate nursing and midwifery students, it was reported that of the 34% that experienced depressive symptoms, 20% faced personal adjustment challenges and 9% faced social adjustment challenges (Horgan *et al.*, 2016).

2.3.7 Student status

The status of a foreign student studying in a university away from his/her home country can also have an impact on their mental health. Foreign students with international student status are more likely to develop depressive symptoms than foreign students with refugee status.

Foreign students with an international status may face some challenges because certain laws and access to certain services in the country do not cover students with just an international status, and yet these are easily accessed by foreign students with refugee status. This can create stress and anxiety among foreign students with international status which can eventually manifest into depression.

2.4 Economic factors and Depression Among Students

2.4.1 Tuition payment

There is a correlation between tuition-related issues and the mental health status of university students. Gani (2016) reported that tuition-related issues, especially an increase in tuition fees, led to financial stress among students of top universities in the UK, and the financial stress was linked to depression and anxiety. In a study that was carried out to assess the impact of tuition fees amount on mental health over time in British students, it was concluded that undergraduates' mental health is partially affected by the level of tuition fees (Richardson, Elliott and Roberts, 2015). However, the study contrasted with a report that suggested that an increase in tuition fees did not seem to appear to have a lasting impact on the students' mental health (Gani, 2016).

In other studies, tuition-related issues were investigated based on the family's economic status or background. Students from wealthy or economically stable families are most likely to pay tuition in full and on time while students from families with a less economic advantage are most likely to pay their tuition late, predisposing them to mental health-related issues such as depression and

anxiety (Arslan *et al.*, 2009; Peltzer *et al.*, 2013b; Othieno *et al.*, 2014; Oppong Asante and Andoh-Arthur, 2015b; Ngasa *et al.*, 2017; Ashraful Islam *et al.*, 2018).

2.4.2 Employment

Employed students usually face challenges with balancing work demands and school demands. These challenges create stress among the students, affecting their mental health, which eventually manifests into depression. In a study that was carried out assessing stress, anxiety, and depression among employed Makerere University students, the findings reported that there was a significant relationship between stress and depression among these students (Bamuteeze, 2019).

2.4.3 Gambling and betting

Young people who indulge in gambling and betting are found to perform poorly in their studies, to lose their tuition/ personal up-keep in gambling-related activities, and to engage in risky behaviors such as alcohol or substance abuse (Ssewanyana and Bitanihirwe, 2018). This predisposes these students to mental health-related issues such as depression, anxiety as a result of addition to gambling and betting.

Peltzer and Pengpid (2015) reported high prevalence rates of 11.9% and 29.2% (severe and moderate depression respectively) among university students that practiced gambling and betting more than once a week.

2.4.4 Accommodation

In some studies, students that resided off university premises reported higher depression rates of depression compared to students living within university premises. Also, students that lived independently were more likely to suffer from depression compared to students who lived with their parents. Among female medical university students in Saudi Arabia, students who lived

independently reported higher rates of depression of 28.0% compared to students that lived with their parents (N. Ibrahim *et al.*, 2013). This is because students that live independently face problems such as rent, upkeep expenses, bill payments which is not the case with students who live with their parents. On the contrary, certain studies reported higher rates of depression among students who reside within university premises and with students that live with family or guardians, compared to independent living students (Othieno *et al.*, 2014; Ashraful Islam *et al.*, 2018). Possible reasons as to why students residing within university premises reported higher depression rates include; peer influence especially when the student has a wealthy circle of friends, adjustment challenges especially first-year students who find difficulties with financial control and living with a roommate, etc. Also, possible reasons to explain why students residing with family reported high depression rates include issues to do with curfew and family problems.

2.5 Conclusion of the Literature review

In conclusion, the prevalence of depression among university students differed from country to country. This, however, depended on what tool was used for assessment and what variables were investigated during the study. For this study, the BDI tool was used to assess the prevalence of depression among the students of Clarke International University. The results obtained were compared with results obtained in previous related studies and surveys that were carried out among Ugandan university students. (Nsereko *et al.*, 2014; Nelson Bahati, 2019) . The results of this study were also compared with results obtained from neighboring countries (especially the research that was conducted among Kenyan university students by Othieno *et al.* in 2014), in addition to studies that were carried out in other African and global countries, to observe any similarities and differences in findings.

Lastly, this study attempted to fill the information gaps observed in the various studies in the review. For example, the study of Nsereko *et al.*, (2014) did not measure the severity of depression among the Ugandan university students and did not include many sociodemographic, social and economic factors such as body weight challenges, gambling, and betting, social media influence, etc, associated with depression among university students.

CHAPTER THREE

3.0 METHODOLOGY

This chapter described the methods of how this study was carried out. It includes the study design, study site, and setting, study population, sample size, sampling techniques, study variables, inclusion and exclusion criteria, data collection method, data entry and analysis, quality control, ethical considerations, and study limitations.

3.1 Study design

An analytical cross-sectional study design was used in this study. The reason for choosing this study design is that it allowed investigation of the relationship between the dependent variable (depression) and the independent variables (demographic, economic, and social factors) of this study. In addition, this type of study design is time-bound by taking a snapshot of the study topic during a given time.

3.2 Study site and setting

The study was conducted at Clarke International University. The university is a non-residential private institution that had its main campus located at Plot 4686 St.Barnabas road, Namuwongo, which is found in the South-Eastern part of Kampala city, Uganda. However, the university recently moved and currently is located near Bukasa stone quarry, Plot 8244, off Kalungi Road Muyenga, Kampala City. Clarke International University currently consists of 860 students, studying full-time, evening, weekend, and distance study modules. The university has four main faculties namely; Institute of Public Health and Management, Institute of Allied Health Sciences, School of Business and Applied Technology, and School of nursing and Midwifery.

The Institute of Public Health and Management consisted of a total of 231 students, out of which, 76 studied Bachelor of Science in Public health, 12 studied Diploma in Public Health, 11 studied Masters of Health Services Management, and 132 studied Masters of Public Health. The Institute of Allied Health Sciences consisted of a total of 431 students, out of which, 147 studied Diploma in Clinical Medicine, 71 studied Bachelor of Medical Laboratory Science, 41 studied Diploma in Pharmacy, 135 studied Higher Education Certificate (Foundation), and 37 studied Postgraduate Diploma in Medical Education. The School of nursing and Midwifery consisted of a total of 190 students, out of which, 41 studied Bachelor of Science in Midwifery (Top-Up), 59 studied Bachelor of Science in Nursing Science (Direct), and 90 are studying Bachelor of Science in Midwifery (Top-Up). The School of Business and Applied Technology consisted of a total of 8 students, out of which 4 studied Bachelor of Computing Technologies, and 4 studied Bachelor of Business Administration.

3.3 Sources of data

The primary data was collected from the students selected to participate in the study while the secondary data was obtained from authors whose research is in line with this study. Additionally, the secondary data collected was reviewed to be utilized for discussion and result comparison.

3.4 Study population

The study population of the study consisted of students at Clarke International University from the different courses (with respective course modules), under the four faculties at the university.

3.5 Sample size determination

Using Yamane's formula to determine the sample size at a 97% confidence interval;

$$n = \frac{N}{1 + Ne^2}$$

n – Sample size

N- Total population number

e- Error at 97% confidence level

$$n = \frac{860}{1 + 860 (0.03)^2}$$

$$n = \frac{860}{1 + 0.774}$$

$$n = 485 \text{ students}$$

3.6 Sampling techniques

Stratified random sampling was employed to source students for this study. This technique was chosen because it ensured that each subgroup (which was each course with its respective different course modules) within the population (entire university student population) was properly represented within the sample. The student class lists with their respective courses and course modules were obtained from the faculty administrators of the four main faculties of the university, to help in the sampling process. For every list, a student whose name was found in an odd position number (that is, the student on the 1st, 3rd, 5th, 7th...nth position on the student list), was selected to participate in the study.

3.7 Study variables

The dependent variable in this study was depression and the independent variables were the socio-demographic factors, economic factors, and social factors.

Table 1: Study Variables

Objective	Variable	Indicators	Source/ tool
Prevalence of depression.	Depression	Depressive symptoms such as depressed mood, lack of interest in normal activities, fatigue, sleep disturbance, suicidal ideation, etc.	BDI II
Demographic factors associated with depression	Demographic factors	Sex, year of study, course of study, bodyweight issues, academic performance,	Questionnaire
Social factors associated with depression.	Social factors	Family disputes, loss of loved one, family history, peer influence, and relationships, social media influence	Questionnaire
Economic factors associated with depression	Economic factors	Accommodation, tuition payment, gambling, and betting, employment	Questionnaire

3.8 Eligibility criteria

Male and female students of Clarke International University, studying courses under the four main faculties of the university were eligible to participate in the study.

Inclusion criteria

Students of Clarke International University studying courses under the four main faculties of the university.

Exclusion criteria

1. Students who will not be available during the study due to illness, absenteeism.
2. Students studying certificate courses at the university.

3.9 Data management

Data collection tools

Questionnaires were used as a method of data collection in this study. The questionnaire was used to collect the socio-demographic, social, and economic data of the study, while the BDI tool was used to investigate the prevalence of depression among the students. The BDI is a self-report rating inventory, consisting of 21-items that measure characteristic attitudes and symptoms of depression. The tool asked each participant to select a description that best described how the person had been feeling in the past two weeks. The scores of each item on the questionnaire ranged from 0 (symptom not present) to 3 (symptom very intense). When a participant was done filling the questionnaire, the scores of each of the 21 questions were added (the highest possible total from the whole questionnaire being 63). Selected students with total scores ≥ 14 were reported as depressed. In terms of severity, total scores ranging from 0 - 4 was reported as normal, 5- 13 as borderline clinical depression, 14 - 19 as mild depression, 20 – 28 as moderate depression, and 29 – 63 as severe depression (Chen *et al.*, 2013a; Ahmed *et al.*, 2020). The BDI tool was tested among Chinese university students and Ethiopian university students and was found to have a high internal consistency of 0.851 and 0.91 respectively (Chen *et al.*, 2013a; Ahmed *et al.*, 2020). According to a study that assessed the validity of the BDI tool in a Jamaican university student cohort, it was reported that the BDI tool had a 0.91 degree of reliability (Lipps, Lowe and Young, 2007).

Data collection techniques

Face-to-face questionnaire administration was used as one of the data collection techniques of this study. With this technique, the researcher was present with the study participant during the process of data collection. This technique allowed room for explanation and more clarification in areas where the study participant failed to understand. Additionally, the use of student emails as a data collection technique was also employed to collect data from students of some course modules such as the distance or online learners and selected students with whom the option of face-to-face administration was not feasible due to distance. Due to the COVID19 pandemic, the majority of the selected students opted for the use of emails as most students were studying from home, while a few with practical sessions at the university opted for the face-to-face technique.

Trained research assistants were used to assist in the process of data collection

Data entry and analysis

Data entry

The data collected from the study was entered and stored into the computer software program *EpiData* (version 3.0) and exported to SPSS version 20 software for analysis.

Data analysis

The recorded data from the questionnaires was analyzed using SPSS software and already analyzed data was presented in form of tables, graphs, pie charts, and figures.

Descriptive analysis at univariate level was carried out for single variables of the study, producing frequencies and percentages.

At the bivariate analysis level, analysis was done to generate P-values using the Chi-square test, the rank-sum test, and Fishers' exact test. The chi-square test was used in comparing groups with cell frequencies greater than 4 while the fishers' exact test was used in comparing groups with cell frequencies less than or equal to 4. The purpose of bivariate analysis was to establish the relationship between independent variables and the dependent variable. The variables with P-values less than 0.05, at 95% confidence interval, were considered statistically significant.

In multivariate analysis of the data, the variables that were considered statistically significant at the bivariate level of analysis were included for logistic regression to establish the odds ratios at a 95% confidence interval. The purpose of carrying out this analysis was to determine the strength of associations that were established from the bivariate analysis level.

3.10 Quality control

Questionnaires were pretested among students from the Bachelor of Nursing Science Direct (BNS D IV) class. The purpose of pretesting was to check on the accuracy of the questionnaire by ensuring that the collected data was valid and necessary for the study. Additionally, the students of class from which pretesting of the questionnaire was carried out were not included in the study to ensure that results were not influenced.

For reliability, the data collection tools were re-designed where necessary. Additionally, during data collection, data checking and cleaning were carried out.

A test-retest procedure, which involved administering the same questionnaire to the same study participants after a given time was carried out to also ensure the reliability of the data collected from this study.

3.11 Plan for dissertation

A report of findings shall be submitted to Clarke International University (CIU) in partial fulfillment of a master's degree of science in public health. A copy of the report shall also be submitted to the University counselor for possible use in both understanding the current mental health status of the students and improving on the mental health services provided by the institution.

3.12 Ethical considerations

Approval

A letter of introduction was sought from the Institute of Public Health, Clarke International University. A letter of approval was also sorted from Clarke International University Research Ethics Committee (CIUREC), in conjunction with National Research Information Management System (NRIMS).

Additionally, a letter of consent was written to the students explaining the aim, procedures, and anticipated benefits of this study. It was also explained to the study participants that their participation will be voluntary, without any payment involved and they had a choice to withdraw their consent at any time of the study. This consent letter was emailed to students who opted for the use of emails as a data collection method.

Confidentiality

The identity of the respondents remained anonymous in the questionnaire.

3.13 Study limitations

1. The data collected relied on self-report, which leaves room for a likelihood of bias.

2. The sample selected was homogenous. There is a possibility that the unselected person was of importance to the research.
3. Inability to generalize the findings because of the sample size and the sampling technique was used in the study.
4. Inability to reach the initial sample size because some of the selected students were not easily accessible, both via emails and physically. This causes a drop in the number of participants in this study and can be attributed to the lockdown that was put into effect as a result of the COVID 19 pandemic.

CHAPTER FOUR

4.0 RESULTS OF THE STUDY

This chapter presents the results of the study according to the prevalence of depression among students of Clarke International University, the socio-demographic factors associated with depression among the students, the economic factors associated with depression among the students, and social factors associated with depression among the students. It also consists of a quantitative form, in relation to data from the questionnaires and the BDI tool. The response rate was 74% as a total of 361 students from the initial sample size of 485 were able to participate in the study.

4.1 Univariate analysis

4.1.1 Prevalence of depression among the students.

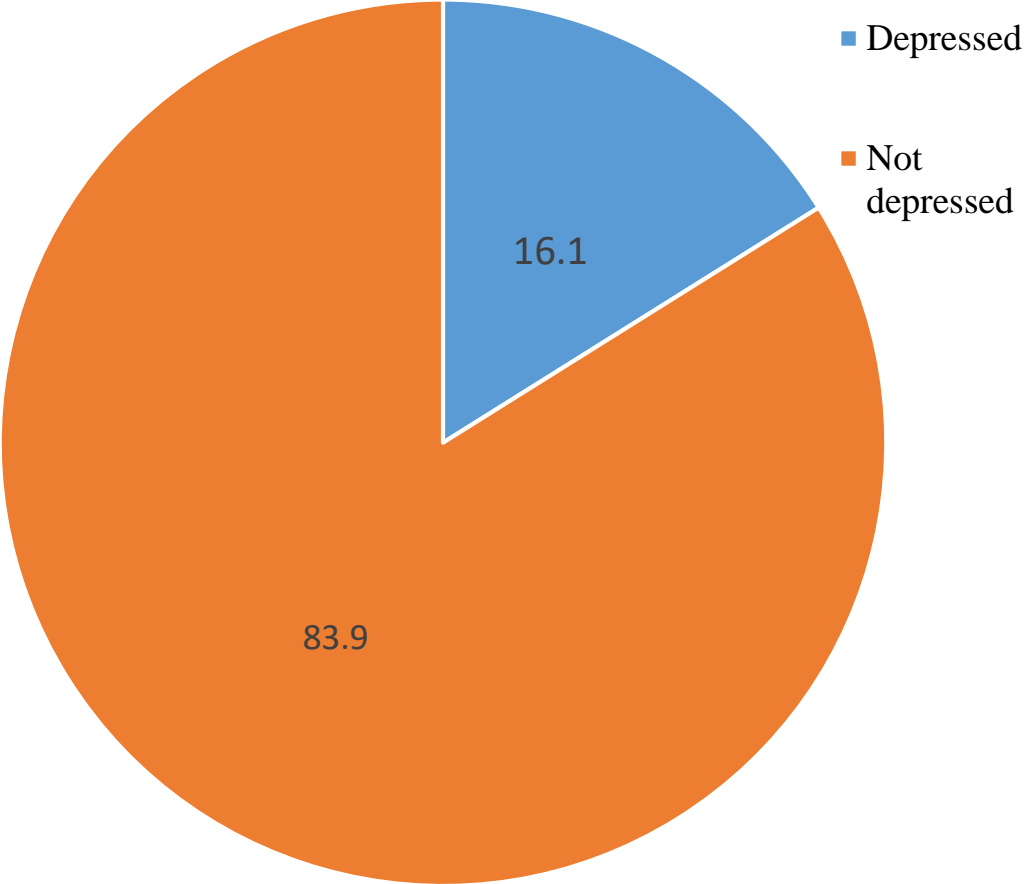
The overall prevalence of depression was 16.1%. In terms of severity, majority 169 (46.8%) of the students were normal or with no depression, 134 (37.1%) had borderline depression, 39 (10.8%) had mild depression, 13 (3.6%) had moderate depression and 6 (1.7%) had severe depression.

Table 2: Prevalence of depression among students in terms of severity.

Variable (Severity)	Score range	Frequency (N =361)	Percentage
Normal	0 – 4	169	46.8
Borderline	5 – 13	134	37.1
Mild	14 – 19	39	10.8
Moderate	20 – 28	13	3.6
Severe	29 – 63	6	1.7

Source: primary data from study participants

Figure 2: Overall prevalence of depression among students.



Source: primary data from study participants.

4.1.2 Demographic factors associated with depression among the students.

Table 3: Demographic factors associated with depression among students

Variable	Frequency (N = 361)	Percentage (%)
Sex		
Male	169	46.8
Female	192	53.2
Age		
18 to 24	173	47.9
≥ 25	187	51.8
Missing	1	0.3
Year of study		
First year	106	29.4
Second year	156	43.2
Third year	79	21.9
Fourth year	19	5.2
Missing	1	0.3
Mode of study		
Full time	219	60.7
Part time	122	33.8

Remote learning	19	5.2
Missing	1	0.3
Academic performance		
Excellent	126	34.9
Satisfactory	205	56.8
Not satisfactory	27	7.5
Missing	3	0.8
Physical, sexual or emotional abuse		
Yes	96	26.6
No	265	73.4
Body weight challenges		
Yes	159	44.0
No	200	55.4
Missing	2	0.6

Source: primary data from the study participants

According to the table above, the majority 192 (53.2%) of the study participants were female while the rest 169 (46.8%) were male. The majority 187 (51.8%) of the participants were in the age category above 25 years while the rest 173 (47.9%) were in the age category 18 – 24 years and 1 (0.3%) was missing the age category. The highest proportion 156 (43.2%) of the participants were second-year students, followed by 106 (29.4%) who were first-year students, then 79 (21.9%) who were third-year students, and finally 19 (5.2%) were fourth-year students. Only one student (0.3%) was missing year of study results.

Over half of the study participants, 219 (60.7%) were studying full time for their different courses, followed by 122 (33.8%) who studied part-time, 19 (5.2%) who studied remotely, and 1 (0.3%)

who had not included their module of study. The majority 205 (56.8%) reported that their academic performance was satisfactory, 126 (34.9%) reported that their academic performance was excellent, 27 (7.5%) reported that their academic performance was not satisfactory and 3 (0.8%) were missing academic performance results.

Less than half 96 (26.6%) of the students had ever experienced physical, sexual, or emotional abuse while the majority 265 (73.4%) of the students had never experienced any of the stated forms of abuse. Less than half 159 (44.0%) of the students experienced bodyweight challenges while the majority 200 (55.4%) did not experience any bodyweight challenges, and 2 (0.6%) were missing bodyweight challenges results.

4.1.3 Economic factors associated with depression among students

Table 4: Economic factors associated with depression among students.

Variable	Frequency N = 361	Percentage (%)
Employment status		
Full time	117	32.4
Part time	55	15.2
Unemployed	189	52.4
With whom do you reside		
Independently	182	50.4
With friends	40	11.1
With parents/ guardians/ relatives	139	38.5
If independently, any accommodation expense challenges?		
Yes	128	70.3
No	54	29.7
Practice gambling/ betting		
Yes	37	10.3
No	324	89.8
If yes, how often do you practice gambling/ betting?		
n = 37		
Every day	4	10.8

A few days in a week	11	29.7
A few days in a month	22	59.5
Student on scholarship or private sponsorship		
Scholarship	22	6.1
Private sponsorship	339	93.9
If on private, experience any financial challenge		
n = 339		
Yes	236	69.6
No	103	30.4

Source: primary data from study participants.

According to the table above, the majority 189 (52.4%) of the students were unemployed, followed by 117 (32.4%) who were full-time employed, and 55 (15.2%) who were part-time employed. Half of the students 182 (50.4%) lived independently, 139 (38.5%) lived with parents/ guardians/ relatives, and 40 (11.1%) lived with friends. Out of the 182 students who lived independently, 128 (70.3%) experienced accommodation expense challenges while the rest 54 (29.7%) did not experience any accommodation expense challenges.

The majority 324 (89.8%) of the students did not practice gambling/ betting while the rest 37 (10.3%) practiced gambling and betting. Out of the 37 students who practiced gambling and betting, 4 (10.8%) did the activity every day, 11 (29.7%) practiced the activity a few days in a week and 22 (59.5%) practiced the activity a few days in a month.

Majority 339 (93.9%) of the students were students on private sponsorship while the rest 22 (6.1%) were students on scholarship. Out of the 339 students on private sponsorship, 236 (69.6%) experienced financial challenges with regard to tuition payment while the rest 103 (30.4%) did not experience any financial challenges with regard to tuition payment.

4.1.4 Social factors associated with depression among students

Table 5: Social factors associated with depression among students

Variable	Frequency N = 361	Percentage (%)
History of depression in the family		
Yes	74	20.5
No	164	45.4
I don't know	123	34.1
Any disputes within the family		
Yes	161	44.6
No	200	55.4
If yes, how have disputes affected mental health, n = 161		
Positively	30	18.8
Negatively	130	81.3
Experienced loss of a loved one		
Yes	305	84.5
No	56	15.5
If yes, when did this unfortunate event occur, n = 305		
Within the last three months	31	10.2
Within the last six months	28	9.2
Within a year	40	13.1
	61	

Over a year ago	206	67.5
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Relationship with peers has an impact on mental health

Strongly agree	133	36.8
Agree	184	51.0
Disagree	28	7.8
Strongly disagree	16	4.4

The impact is

Positive	77	21.3
Negative	20	5.5
Both positive and negative	230	63.7
I don't know	34	9.4

How often is social media used

Everyday	254	70.4
A few days in a week	80	22.2
A few days in a month	20	5.5
Never	7	1.9

Social media impact on mental health

Positively	87	24.1
Negatively	30	8.3
Both positively and negatively	212	58.7
I don't know	32	8.9

Challenge while adjusting to university lifestyle

Yes	248	68.7
No	113	31.3

If yes, which of these challenges, n = 248

Living with a roommate	13	5.2
Living independently	43	17.3
	62	

Study routine	85	34.3
Making new friends or social groups	60	24.2
Others	41	16.6
Missing	6	2.4

National or international student

National	278	77.0
International	83	23.0

If international, what is your student status, n = 83

Refugee	24	28.9
International	59	71.1

Source: primary data from study participants

According to the table above, majority 164 (45.4%) of the students had no history of depression in their family, followed by 123 (34.1%) who did not know if there was any history of depression in their family and 74 (20.5%) who had a history of depression in their family. Over half of the students 200 (55.4%) had no disputes within the family while the rest 161 (44.6%) had disputes within the family. Out of the 161 who had disputes within the family, 30 (18.8%) stated that the family disputes affected their mental health positively while the rest 130 (81.3%) stated that the family disputes affected their mental health negatively.

Majority 305 (84.5%) experienced a loss of a loved one while the rest 56 (15.5%) did not. Of the 305 who experienced loss, 31 (10.2%) stated that the loss occurred within the last three months, 28 (9.2%) stated that the loss occurred within the last six months, 40 (13.1%) stated that it occurred

within a year and the rest 206 (67.5%) stated that it occurred over a year ago. Slightly over half 184 (51.0%) of the students agreed that the relationship with peers had an impact on the status of one's mental health, followed by 133 (36.8%) who strongly agreed, 28 (7.8%) disagreed, and 16 (4.4%) strongly disagreed.

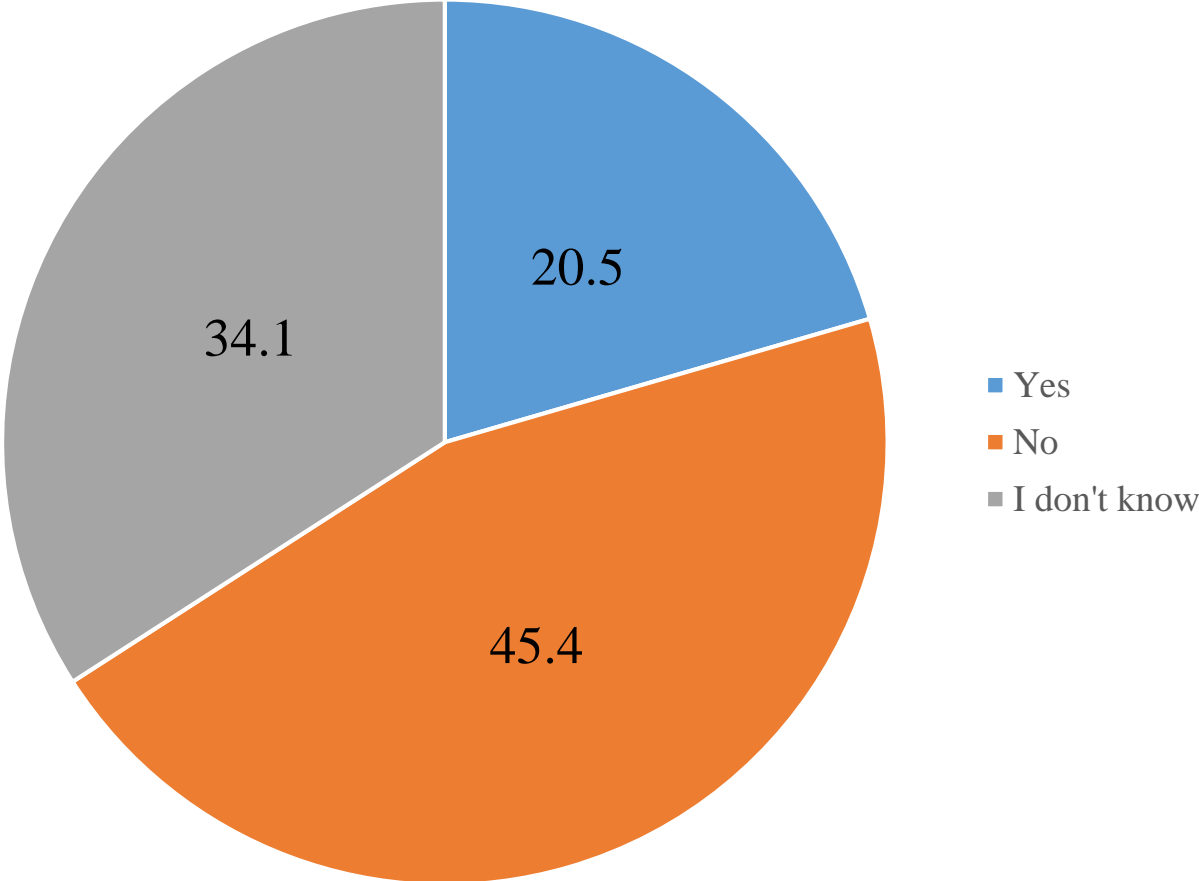
Majority 254 (70.4%) used social media every day, followed by 80 (22.2%) who used social media a few days in a week, 20 (5.5%) used social media a few days in a month and 7 (1.9%) never used social media. The highest proportion 212 (58.7%) of students reported that the continuous use of social media has both a positive and negative impact on one's mental health, 87 (24.1%) stated that the impact was positive, 30 (8.3%) stated that the impact was negative, and 32 (8.9%) did not know what impact social media has on one's mental health.

The highest proportion 248 (68.7%) experienced challenges while adjusting to university while the rest 113 (31.3%) did not experience any challenges while adjusting to university lifestyle. Of the 248 who experienced challenges while adjusting to university lifestyle, majority 85 (34.3%) reported that the challenge they experienced was study routine, followed by 60 (24.2%) whose challenge was making new friends or social groups, then 43 (17.3%) experienced living independently as a challenge, 41 (16.6%) experienced other challenges such as online studying, language barrier, etc., 13 (5.2%) experienced living with a roommate as a challenge, and 6 (2.4%) neither specified nor stated the challenge they experienced.

The majority 230 (63.7%) stated that this impact was both positive and negative, followed by 77 (21.3%) who stated that the impact was positive, 34 (9.4%) stated that they didn't know the impact, and 20 (5.5%) stated that the impact was negative. Majority 278 (77.0%) of the students were national students while rest 83 (23.0%) were international students. Out of the 83

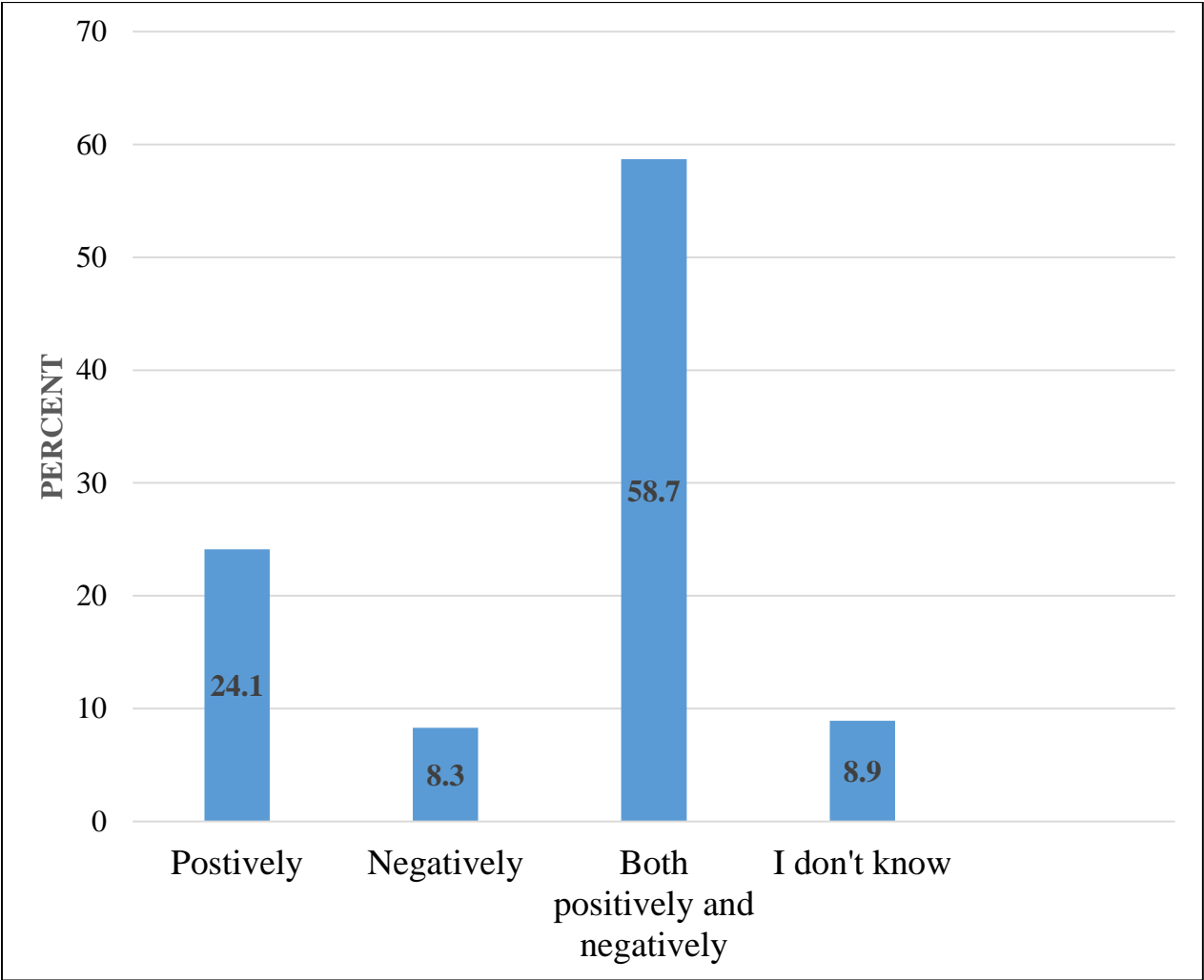
international students, 24 (28.9%) were refugees while the rest 59 (71.1%) were international students.

Figure 3: History of depression in family.



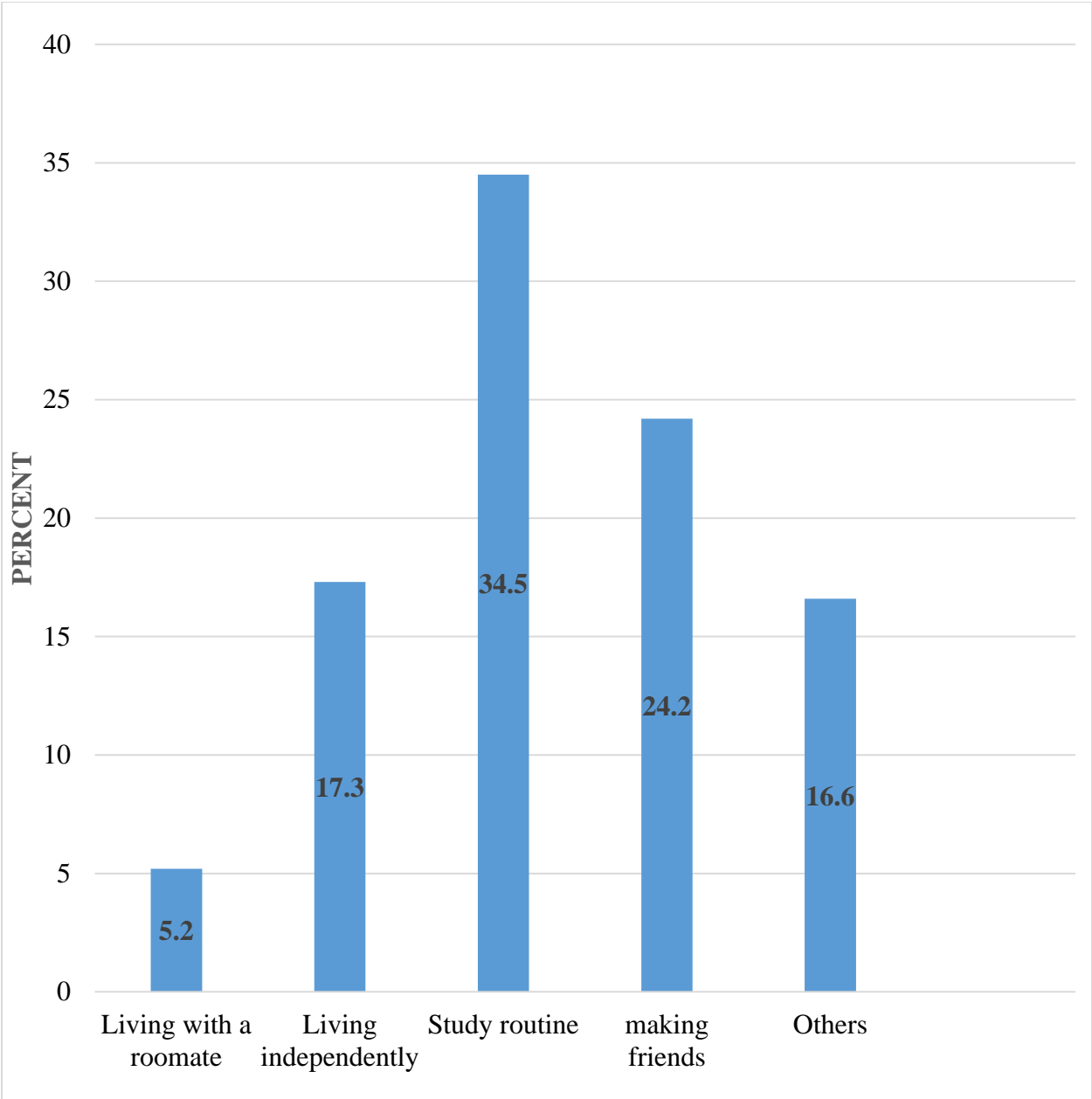
Source: primary data from study participants.

Figure 4: Perception of the impact of social media use on mental health.



Source: primary data from study respondents.

Figure 5: Challenges experienced while adjusting to university lifestyle.



Source: primary data from study participants.

4.2 Bivariate analysis

4.2.1 Relationship between demographic factors and depression.

Table 6: Relationship between demographic factors and depression

Characteristics Row (%)	Depression status		P - value
	Not depressed N = 303 (%)	Depressed N = 58 (%)	
DEMOGRAPHIC			
Age; median (IQR)	25 (22 - 32)	24 (22 - 29)	0.053²
Age group			0.041 **
18 – 24	138 (79.8)	35 (20.2)	
≥ 25	164 (87.7)	23 (12.3)	
Sex			0.009**
Female	152 (79.2)	40 (20.8)	
Male	151 (89.4)	18 (10.6)	
Year of study			0.187¹
1	90 (84.9)	16 (15.1)	
2	129 (82.7)	27 (17.3)	
3	64 (81.0)	15 (19.0)	
4	19 (100.0)	0	
Mode of course			0.293¹
Full time	179 (81.7)	40 (18.3)	
Part time	105 (86.1)	17 (13.9)	
Remote learn	18 (94.7)	1 (5.3)	
Academic performance			<0.001
Excellent	112 (88.9)	14 (11.1)	
Satisfactory	176 (85.9)	29 (14.1)	
Not satisfactory	13 (48.2)	14 (51.8)	
Physical, sexual, or emotional abuse			0.002**
Yes	71 (74.0)	25 (26.0)	
No	232 (87.6)	33 (12.4)	
Bodyweight challenges			0.275
Yes	130 (81.8)	29 (18.2)	
No	172 (86.0)	28 (14.0)	

** Statistically significant at $P < 0.05$

P -value = Pearson's chi-square test p -value

P^1 -value = Fishers exact p -value

P^2 -value = Rank sum test p -value

According to the table above, depression among students was associated with; age ($p=0.041$), sex ($p=0.009$), academic performance ($p < 0.001$), and physical, and social or emotional abuse ($p=0.002$). There was no significant relationship between body weight challenges ($p=0.275$) and depression.

Additionally, there was no significant relationship between year of study ($p=0.187$), the module of study ($p=0.293$), how often one used social media ($p=0.732$), and depression among students.

According to the Rank sum test P-result (IQR) presented in the table above, the median difference in age across students who were depressed and those not depressed was statistically not significant ($p=0.053$).

4.2.2 Relationship between economic factors and depression

Table 7: Relationship between economic factors and depression

Variable	Depression status		P – value
	Not depressed N = 303 (%)	Depressed N = 58 (%)	
Employment status			0.111
Full-time employment	105 (89.7)	12 (10.3)	
Part-time	44 (80.0)	11 (20.0)	
Unemployed	154 (81.5)	35 (18.5)	
With whom do you reside			0.500
Independently	154 (84.6)	28 (15.4)	
With friends	31 (77.5)	9 (22.5)	
With parents/guardians/relatives	118 (84.9)	21 (15.1)	
Practice gambling/betting			0.018**
Yes	26 (70.3)	11 (29.7)	
No	275 (85.4)	47 (14.6)	
Student on scholarship or private			0.765¹
Private	285 (84.1)	54 (15.9)	
Scholarship	18 (81.8)	4 (18.2)	

** Statistically significant at $P < 0.05$

P-value = Pearsons Chi-square test p-value

P¹-value = Fishers exact p-value

According to the table above, depression among the students was associated with practicing gambling/ betting (p-0.018). There was no significant relationship between student employment status (p-0.111), student resident status (p-0.500), and depression.

Additionally, there was no significant relationship between being a student on scholarship or private sponsorship (p-0.765) and depression.

4.2.3 Relationship between social factors and depression

Table 8: Relationship between social factors and depression

Variable	Depression status		P - value
	Not depressed N = 303 (%)	Depressed N = 58 (%)	
History of depression in family			0.002**
Yes	56 (75.7)	18 (24.3)	
No	150 (91.5)	14 (8.5)	
I don't know	97 (78.9)	26 (21.1)	
Any disputes within the family			<0.001**
Yes	121 (75.6)	39 (24.4)	
No	182 (91.0)	18 (9.0)	
Experienced loss of loved one			0.114
Yes	252 (82.6)	53 (17.4)	
No	51 (91.1)	5 (8.9)	
Relationship with peers has impact on mental health			0.146¹
Strongly agree	116 (87.2)	17 (12.8)	
Agree	152 (82.6)	32 (17.4)	
Disagree	20 (71.4)	8 (28.6)	
Strongly disagree	15 (93.8)	1 (6.2)	
The impact is			0.150¹
Positive	70 (90.9)	7 (9.1)	
Negative	14 (77.8)	4 (22.2)	
Both positive and negative	191 (83.0)	39 (17.0)	
I don't know	26 (76.5)	8 (23.5)	
Missing			
How often use social media			0.732¹
Every day	211 (83.1)	43 (16.9)	
A few days in a week	70 (87.5)	10 (12.5)	
A few days in a month	16 (80.0)	4 (20.0)	
Never	6 (85.7)	1 (14.3)	

Social media impacted mental health			0.017**
Positively	81 (93.1)	6 (6.9)	
Negatively	23 (76.7)	7 (23.3)	
Both positively and negatively	176 (83.0)	36 (17.0)	
I don't know	23 (71.9)	9 (28.1)	
Challenge when adjusting to university life			0.012**
Yes	200 (80.7)	48 (19.3)	
No	103 (91.1)	10 (8.9)	
Are you a national student or an international student			0.003**
International	61 (73.5)	22 (26.5)	
National	241 (87.0)	36 (13.0)	

** Statistically significant at $P < 0.05$

P -value = Pearson's Chi-square test p -value

P^1 -value = Fishers exact p -value

According to the table above, depression among the students was associated with; history of depression in the family ($p=0.002$), disputes within the family ($p<0.001$), the impact of social media use on one's mental health ($p=0.017$), challenges while adjusting to university lifestyle ($p=0.0012$) and the student's nationality status ($p=0.003$), There was no significant relationship between the loss of a loved one ($p=0.114$) and depression.

Additionally, there was no significant relationship between the impact of relationship with peers on one's mental health ($p=0.146$), perception of the impact of relationship with peers on one's mental health ($p=0.150$), and depression.

4.3 Multivariate analysis

Multivariate analysis of factors associated with depression.

Table 9: Multivariate analysis of factors associated with depression.

Variable	Unadjusted Odds ratios (CI)	P-value	Adjusted Odds ratios (CI)	P-value
Sex				
Female	2.21 (1.21 - 4.02)	0.010	2.08 (0.97 - 4.48)	0.060
Male	1.00		1.00	
Academic performance				
Excellent	1.00		1.00	
Satisfactory	1.32 (0.67 - 2.60)	0.426	1.54 (0.72 - 3.30)	0.268
Not satisfactory	8.62 (3.37 - 22.0)	<0.001	5.02 (1.69 - 14.94)	0.004**
Challenge when adjusting to university life				
Yes	2.47 (1.20 - 5.09)	0.014	1.73 (0.72 - 4.15)	0.219
No	1.00		1.00	
Physical, sexual, or emotional abuse				
Yes	2.48 (1.38 - 4.44)	0.002	1.55 (0.74 - 3.22)	0.244
No	1.00		1.00	
Social media impact on mental health				
Positively	1.00		1.00	
Negatively	4.11 (1.26 - 13.43)	0.019	1.91 (0.47 - 7.66)	0.363
Both positively and negatively	2.76 (1.12 - 6.82)	0.028	2.25 (0.80 - 6.34)	0.123
I don't know	5.28 (1.70 - 16.39)	0.004	3.34 (0.89 - 12.56)	0.074
Employment status				
Full-time employment	1.00		1.00	
Part-time	2.19 (0.90 - 5.33)	0.085	2.03 (0.71 - 5.81)	0.184
Unemployed	2.00 (0.98 - 4.01)	0.055	1.96 (0.86 - 4.48)	0.112
Practice gambling/betting				
Yes	2.48 (1.15 - 5.35)	0.021	2.61 (0.94 - 7.26)	0.067
No	1.00		1.00	
History of depression in family				
Yes	3.44 (1.61 - 7.39)	0.001	2.82 (1.15 - 6.95)	0.024**
No	1.00		1.00	
I don't know	2.87 (1.43 - 5.77)	0.003	1.50 (0.63 - 3.54)	0.360

Any disputes within the family				
Yes	3.26 (1.78 - 5.96)	<0.001	2.22 (1.05 - 4.69)	0.037**
No	1.00		1.00	
Experienced loss of loved one				
Yes	2.15 (0.82 - 5.63)	0.121	2.48 (0.76 - 8.09)	0.134
No	1.00		1.00	
Are you a national student or an international student				
International	2.41 (1.32 - 4.40)	0.004	2.87 (1.29 - 6.38)	0.010**
National	1.00		1.00	

**** Statistically significant at $P < 0.05$**

According to the above table, students with a non-satisfactory academic performance were 5 times more likely to be depressed than those with excellent academic performance (aOR=5.02, 95% CI: 1.69-14.94, P=0.004). Students with a history of depression in their families were 2.8 times more likely to be depressed than those without (aOR=2.82, 95% CI: 1.15-6.95, P=0.024). Students with disputes within the family were 2.2 times more likely to be depressed than those without (aOR=2.22, 95% CI: 1.05-4.69, p=0.037). International students were 2.9 times more likely to be depressed than national students (aOR=2.87, 95% CI: 1.29-6.38, p=0.010).

CHAPTER FIVE

5.0 DISCUSSION

This chapter discusses the factors associated with depression among students. It consists of a comparison of the study with other studies done in the same area and is arranged according to the specific objectives of the study.

5.1 Prevalence of depression among students

Depression among university students has far-reaching effects on not only the students but families and communities at large. In this study, the prevalence of depression among students of Clarke International University was sought, and the overall prevalence of depression among the students was 16.1%.

This is lower than the overall prevalence of depression that was found in other studies done among Ugandan university students, such as, in the study that was done by Nsereko *et al.*, (2014) which revealed that 34.8% of the students screened positive for psychopathology (which included depression). Additionally, results from a most recent study among Makerere University medical students revealed a higher overall prevalence of depression of 21.5% (Olum, Nakwagala and Odokonyero, 2020).

When compared with results from other countries, overall prevalence of depression from this study was however higher than that of a study that was carried out among Chinese university students, with results of 11.7% (Chen *et al.*, 2013a).

The overall prevalence of depression in this study was lower when compared with results of studies from other African countries such as Kenya, where the overall prevalence of depression among

the students was 35.7% (Othieno *et al.*, 2014), and Ethiopia which had an overall prevalence of 28.2% (Ahmed *et al.*, 2020). Other African countries with a higher overall prevalence of depression results among the university students included South Africa, which reported results of 36.4% among medical students (Van Der Walt *et al.*, 2020), Cameroon, which reported results of 30.6% among medical students (Ngasa *et al.*, 2017) and Egypt, which reported results of 63.6% (Abdallah and Gabr, 2014). Similarly, when compared with the majority of other global studies, results coincided with those from other African countries, with higher results ranging from 18.4% among students in Spain (Ramón-Arбуés *et al.*, 2020) to 71.25% among medical students in India (Kumar, Jain and Hegde, 2012).

In terms of severity of depression, this study revealed that mild depression was most prevalent (10.8%), followed by moderate depression (3.6%), and then 1.7% severe depression. This is contradictory to results from all the above studies where the most prevalent form of depression among university students was moderate depression.

The difference in prevalence results between this study and other related studies can be attributed to reasons such as; specificity of the study to students from one course in a university (for example studies were conducted on only medical students), the difference in the diagnostic tool used to assess the prevalence of depression, and the type of study (in some studies, depression was not the only dependent variable).

5.2 Demographic factors associated with depression

This study revealed that academic performance is associated with depression, and students with a non-satisfactory academic performance were 5 times more likely to be depressed than students with excellent academic performance. These coincided with results from a study that was done in Cambodia, which reported that students with poor or non-satisfactory academic performance were

seven times more likely to be depressed than those with excellent academic performance (Ngin *et al.*, 2018). Some of the reasons to explain these results are; fear/worry to disappoint parents or guardians with their academic performance, worry of course unit retakes and failure to graduate in time due to poor performance. Nsereko *et al* (2014) also reported students that who were exposed to psychosocial problems (which also included academic performances), were more likely to develop psychopathology manifesting as depression and anxiety.

However, the results of the association between academic performance and depression of this study were contradictory to the study that was carried out among Kenya university students, which reported that students with a satisfactory academic performance were 2.9 times more likely to be depressed than those with excellent academic performance (Othieno *et al.*, 2014).

Despite the fact that at the bivariate level, sex in this study was statistically significant, at the multivariate level, there was no association between sex/ gender and depression. This is contradictory to results from a study that was done among university students from West Ethiopia, which reported that female students were four times more likely to be depressed than male students (Birhanu and Hassenin, 2016).

In this study, at the multivariate level, there was no association between traumatic experiences and depression. This is contradictory to results from the study that was done among Kenyan university students which reported that students who had ever experienced any form of trauma (or who had PTSD) were five times more likely to be depressed than those who did not (Othieno *et al.*, 2014). Additionally, in the study that was done among university students in Malaysia, it was also reported that a student with PSTD was 1.4 times more likely to be depressed than a student without PTSD (Ashraful Islam *et al.*, 2018). The difference between this study and the above two studies

was that while in this study traumatic experience was investigated as physical, emotional, or sexual abuse, in the other studies it was investigated as PTSD.

In this study, the year of study of the student was not statistically significant and had no association with depression. This is contradictory to some studies which reported that the year of study of the student was statistically significant to depression, and in most cases, first-year students were likely to be depressed than continuing students (Abdallah and Gabr, 2014; Othieno *et al.*, 2014). A possible explanation for this contradiction could be that some of these studies were specified to assess first-year students only, compared to the entire university.

5.3 Economic factors associated with depression

Findings from this study revealed that gambling/ betting was statistically significant at the bivariate level. However, at multivariate level, there was no association between gambling/ betting and depression. This is contradictory to results from a study that was done among universities from 26 low, middle and high-income countries, which reported that students that practiced gambling more than once a week were 1.2 times more likely to be depressed than students who did not practice the activity (Peltzer and Pengpid, 2015). The similarity was when participants of this study were required to specify how often they practiced the activity, from every day to a few days in a month. The difference was in the study site and setting as this study used one university in a low-income country as opposed to many universities from 26 low, middle, and high-income countries in the comparative study.

In this study, student employment status, accommodation challenges, and tuition payment status had no bearing with depression. These results were not consistent with results obtained from other studies where the above variables were statistically significant and had an association with depression. (Peltzer *et al.*, 2013b; Othieno *et al.*, 2014; Oppong Asante and Andoh-Arthur, 2015b;

Ngasa *et al.*, 2017; Ashraful Islam *et al.*, 2018). One of the possible reasons for the difference in results was in how different studies assessed the variables. For example, in the case of tuition payment status, while this study investigated the variable as being a private sponsored or student on scholarship, comparative studies investigated the variable in terms of the family's economic status.

5.4 Social factors associated with depression

In this study, family history with depression was statistically significant, and students whose families had a history of depression were 2.8 times more likely to be depressed than students who did not have any history of depression in their families. These results coincided with the results from a study that was done among undergraduate medical students in India. The comparative study revealed that students with a history of depression in their families were 5.4 times more likely to be depressed than students who had no history of depression in the family (Kumar, Jain and Hegde, 2012). Additionally, according to Tayim (2017), if a person had a family member who had ever suffered from depression, that person was 2 or 3 times at a greater risk of developing depressive symptoms or suffering from depression compared to an average person.

Findings in this study revealed that students who had disputes/ conflicts within their families were 2.2 times more likely to be depressed than those without. These results coincided with results of the study that was done in India among undergraduate medical students, which reported that students with family problems were 4.4 times more likely to be depressed than students without family problems (Kumar, Jain and Hegde, 2012). Additionally, in a study that was done in China, it was reported that family conflicts were positively correlated with depression among university students. ($r = 0.29$, $p < 0.05$) (Yu *et al.*, 2015).

Interestingly, the findings of this study revealed that international students were 2.9 times more likely to be depressed than national students. In a study that was done among international students studying in Japan, it was reported that international students were more likely to be depressed than domestic students, with higher depression prevalence rates of 37.81% than domestic students who reported rates of 29.8% (Nguyen, Le and Meirmanov, 2019). According to a study that was done by Shadowen *et al.*, (2019) among international students, in the hierarchical multiple regression model, it was revealed that issues such as poor English fluency, increased acculturative stress, and perceived discrimination was associated with higher levels of depression among international students. Additional reasons to explain these results include; feeling homesick, and accommodation challenges.

There was no association, at the multivariate level, between the impact of continuous use of social media on ones' mental health and depression, in this study. This is contradictory to results that were obtained from a study that was done by Ahmad, Hussain and Munir, (2018), which revealed that students that spent more time on social media were more depressed than those that spent less time on social media. Additionally, a study that was done in Spain reported that students with PUI as a result of excessive and continuous internet use were 3.3 times more likely to be depressed than students without PUI (Ramón-Arbués *et al.*, 2020).

In this study, at multivariate level, there was no association between adjustment challenges to university lifestyle and depression. This is contradictory to results from a study that was done among nursing and midwifery students in Ireland, which reported that students with either personal or social adjustment issues were more likely to be depressed than students who did not experience adjustment issues (Horgan *et al.*, 2016).

In this study, the loss of a loved one had no association with depression. This is contradictory to findings of a study that was done among female medical students in Saudi Arabia, where it was reported that females who lost a loved one during the time of the study were 2 times more likely to be depressed than students who had not lost a loved one during the time of the study (N. Ibrahim *et al.*, 2013). The difference is that while this study was not gender-specific, the comparative study was specific to only females at the university.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

This chapter entails the conclusion and recommendations made in relation to the findings of this study.

6.1 Conclusion

The study revealed that depression among the students was significant to the academic performance of the student as a demographic factor, and family history with depression, conflicts within the family, and student nationality status as social factors. Despite the fact that gambling/betting, as an economic factor, was statistically significant to depression, there was no association between it and depression at the multivariate level. The study also revealed that other economic factors (employment status, tuition payment status, and accommodation challenges) had no bearing with depression among the students.

6.2 Recommendations

1. The university should develop new and culturally sensitive innovations, in addition to the strategies that are in place, aimed at managing depression among the students, such as the creation of a university counselling application.
2. The university counselling team should foster peer support therapy as a strategy aimed at addressing mental health among international students.
3. The students should utilize the counselling services (which are both online and physical) offered by the university.

4. Family involvement in some counselling sessions with the students should be done. This will help both parents and students receive a broader understanding on the students' mental health status. It will also be beneficial for home-based care/therapy.

5. The Ministry of Education should establish new educational platforms around university student mental health, aimed at health educating families and communities on the different types of mental disorders that affect university students, their respective causes, signs and symptoms, and how, when and where a person can access treatment.

6. Further research studies involving analytical study designs are recommended to achieve or establish direct and indirect causes of depression among the students. This will provide a more in-depth understanding of depression among university students.

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INFORMED CONSENT TO PARTICIPATE IN THE STUDY

DEPRESSION AND ITS ASSOCIATED FACTORS AMONG STUDENTS OF CLARKE INTERNATIONAL UNIVERSITY, KAMPALA UGANDA.

Hello, my name is Owachi Deirdre. I am a student at Clarke International University undertaking this project as a requirement for the award of a master's degree in public health. I would like to invite you to participate in this research study. Before you give your permission, I would like to tell you what will be asked. If you have any questions, feel free to ask.

Objectives

In this study, the objectives that shall be achieved include;

- i. The prevalence of depression among the students of Clarke International University.
- ii. The demographic factors associated with depression among the students of Clarke International University.
- iii. The social factors associated with depression among the students of Clarke International University.
- iv. The economic factors associated with depression among the students of Clarke International University.

Procedures

You are being asked to complete a questionnaire. This interview will take approximately 10-45 minutes. The researcher will ask you the questions. There are no right or wrong answers; we want to know about you, your opinions and experiences.

Are there any risks or discomforts from participating in the study?

I will conduct the interview in a private and safe space to ensure privacy. The only potential risk in participating in this study is that you may feel uncomfortable answering some of the more personal questions however you may decide not to respond to questions you are not comfortable with.

Possible benefits, compensation and costs of the study

The information collected may be helpful in finding strategies to reduce the prevalence of depression and its impact on university students. There is no cost for participating in this study. There is no reward for participating or compensation. However, participants found to have health-related information need related to the study will be linked/referred to the University counsellor, Mr Maurice Osire, for counselling services.

What are your rights as a participant?

Your participation will be entirely voluntary. You are free to stop the interview at any time without giving any reason.

Confidentiality

All your responses will be confidential. We will assign a unique identification number so that your name is linked to the answers you give. The results of the study will be presented in a respectful manner, and information that could enable anyone to identify you personally will be reported.

Questions and contacts

If you have questions for me, about the study or the consent document, please ask before signing, and I will do my best to answer them. You will receive a copy of this consent form if you like. If

you have any additional questions or if you need to discuss any other aspect of the study, you can contact the researcher at 0771414376.

This study has been reviewed and approved by Clarke International University Research and Ethics Committee (CIUREC). If you have any questions concerning your rights as a participant in this research, please contact the Chairperson of CIUREC Dr Samuel Kabwigu on Tel +256-312-307400 or the Uganda National Council for Science and Technology Tel: +256-414-705500.

STATEMENT OF CONSENT

Please tick the box which best describes your assessment of understanding of the above-informed consent document.

I have read the above-informed consent document and understand the information provided to me regarding my participation in the study and the benefits and risks. I give consent to take part in the study and will sign the following page.

I have read the above-informed consent document, but still have questions about the study; therefore, I do not give yet my full consent to take part in the study.

.....
Signature of Person Taking Part in Study

.....
Date

.....

Name of Person Taking Part in Study (Optional)

.....

The thumbprint of Person Taking Part in Study

.....

Signature of Person Obtaining Informed Consent/ Research Authorization Date

.....

Name of Person Obtaining Informed Consent/ Research Authorization Date

APPENDIX I: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC DATA

1. Sex: Female Male
2. Age:
3. Year of study (Year 1, Year 2, Year 3)
4. The course of study:
5. The mode of course of study (Full time, Part time, Weekend)
6. Academic performance: Excellent Satisfactory Not satisfactory
7. Have you ever experienced any physical, sexual, or emotional abuse?
Yes No
8. Do you experience any bodyweight challenges?
Yes No

SECTION B: ECONOMIC FACTORS

- B.1. Employment status: Full-time employed Part-time Unemployed
- B.2. With whom do you reside?
1. Independently 3. With parents/guardians/relatives
2. With friends
- B.3 If you live independently, do you experience accommodation expense challenges?
Yes No
- B.4 Are you a student on scholarship or a private sponsorship?.....

B.5. If you are on private sponsorship, do you experience any financial challenges with regard to tuition payment?

Yes

No

B.6. Do you practice gambling/ betting?

Yes

No

B.7 If yes, how often do you practice this activity?

Every day

A few days in a week

A few days in a month

SECTION C: SOCIAL FACTORS

C.1. Is there any history of depression in your family?

Yes

No

I don't know

C.2. Are there any disputes within the family?

Yes

No

C.3 If yes, how have these disputes affected your mental health?

Positively

Negatively

C.4. Have you ever experienced the loss of a loved one (relative/ friend)?

Yes

No

C.5. If yes, when did this unfortunate event occur?

Within the last 3 months

Within a year

Within the last 6 months Over a year ago

C.6. The relationship with your peers and their influence has an impact on the status of your mental health

Strongly agree Agree Disagree Strongly disagree

C.7 This impact is

Positive Negative Both positive and negative I don't know

C.8 How often do you use social media?

Every day A few days in a week
A few days in a month Never

C.9 The continuous use of social media has created an impact on your mental health

Positively Negatively
Both positively and negatively I don't know

C.10 Did you experience any challenges while adjusting to university lifestyle?

Yes No

C.11 If yes, which of these challenges did you experience while adjusting to university lifestyle?

Living with a roommate Living independently Study routine
Making new friends or social groups Others (specify).....

C.12. Are you a national student or an international student?.....

C.13. If international, what is your student status?

Refugee

International

SECTION D: ASSESSING DEPRESSION USING THE BDI QUESTIONNAIRE

SIGNATURE:.....

DATE:.....

INSTRUCTIONS: This questionnaire consists of 21 groups of statements. Please read each statement carefully and tick the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Be sure that you **do not tick** more than one statement for any group.

Description	Tick	Score
I do not feel sad	0
I feel sad much of the time.	1
I am sad all the time.	2
I am so sad or unhappy that I can't stand it	3
I am not discouraged about my future.	0
I feel more discouraged about my future than I used to.	1
I do not expect things to work out for me.	2
I feel my future is hopeless and will only get worse.	3
I do not feel like a failure.	0
I have failed more than I should have.	1
As I look back, I see a lot of failures.	2
I feel I am a total failure as a person.	3

I get as much pleasure as I ever did from the things I enjoy.	.....	0
I don't enjoy things as much as I used to.	.....	1
I get very little pleasure from the things I used to enjoy.	.....	2
I can't get any pleasure from the things I used to enjoy	.....	3
I don't feel particularly guilty.	.....	0
I feel guilty over many things I have done or should have done.	.....	1
I feel quite guilty most of the time.	.....	2
I feel guilty all of the time.	.....	3
I don't feel I am being punished.	.....	0
I feel I may be punished.	.....	1
I expect to be punished.	.....	2
I feel I am being punished.	.....	3
I don't feel disappointed in myself.	.....	0
I am disappointed in myself.	.....	1
I am disgusted with myself.	.....	2
I hate myself.	.....	3
I don't feel I am any worse than anybody else.	.....	0
I am critical of myself for my weaknesses or mistakes.	.....	1
I blame myself all the time for my faults.	.....	2
I blame myself for everything bad that happens.	.....	3
I don't have any thoughts of killing myself.	.....	0
I have thoughts of killing myself, but I would not carry them out.	.....	1
I would like to kill myself.	.....	2

I would kill myself if I had the chance.	.....	3
I don't cry any more than usual.	.....	0
I cry more now than I used to.	.....	1
I cry all the time now.	.....	2
I used to be able to cry, but now I can't cry even though I want to.	.....	3
I am no more irritated by things than I ever was.	.....	0
I am slightly more irritated now than usual.	.....	1
I am quite annoyed or irritated a good deal of the time.	.....	2
I feel irritated all the time.	.....	3
I have not lost interest in other people.	.....	0
I am less interested in other people than I used to be.	.....	1
I have lost most of my interest in other people.	.....	2
I have lost all of my interest in other people.	.....	3
I make decisions about as well as I ever could.	.....	0
I put off making decisions more than I used to.	.....	1
I have greater difficulty in making decisions more than I used to.	.....	2
I can't make decisions at all anymore.	.....	3
I don't feel that I look any worse than I used to.	.....	0
I am worried that I am looking old or unattractive.	.....	1
I feel there are permanent changes in my appearance that make me look unattractive	.....	2
I believe that I look ugly.	.....	3
I can work about as well as before.	.....	0

It takes an extra effort to get started at doing something.	.....	1
I have to push myself very hard to do anything.	.....	2
I can't do any work at all.	.....	3
I can sleep as well as usual.	.....	0
I don't sleep as well as I used to.	.....	1
I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.	.....	2
I wake up several hours earlier than I used to and cannot get back to sleep.	.....	3
I don't get more tired than usual.	.....	0
I get tired more easily than I used to.	.....	1
I get tired from doing almost anything.	.....	2
I am too tired to do anything.	.....	3
My appetite is no worse than usual.	.....	0
My appetite is not as good as it used to be.	.....	1
My appetite is much worse now.	.....	2
I have no appetite at all anymore.	.....	3
I haven't lost much weight, if any, lately.	.....	0
I have lost more than five pounds.	.....	1
I have lost more than ten pounds.	.....	2
I have lost more than fifteen pounds.	.....	3
I am no more worried about my health than usual.	.....	0
	.....	1

I am worried about physical problems like aches, pains, upset stomach, or constipation.	.....	2
I am very worried about physical problems and it's hard to think of much else.	.....	3
I am so worried about my physical problems that I cannot think of anything else.		
I have not noticed any recent change in my interest in sex.	.....	0
I am less interested in sex than I used to be.	.....	1
I have almost no interest in sex.	.....	2
I have lost interest in sex completely.	.....	3

APPENDIX II: BUDGET

	ITEM	QUANTITY	COST (UGX)
	STATIONERY		
1.	Box file	1	15,000
2.	Ream of paper	2	60,000
3.	Pens	1 box	15,000
4.	Printing	500	50,000
	Transportation		300,000
	Research Assistants	6	300,000
	Data Analyst		600,000
	Sanitizers	5	25,000
	Internet data		100,000
	Miscellaneous		50,000
	TOTAL		1,515,000

APPENDIX III: WORKPLAN

	TIME FRAME ((MONTHS)					
Activity	Mar 2020	Mar-Aug 2020	Aug-Dec 2020	Dec 2020 - Mar 2021	Mar 2021	Apr – May 2021
Writing synopsis	X					
Proposal writing	X	X				
Study approval			X			
Data collection				X		
Data analysis					X	
Report draft writing and corrections						X
Submission of dissertation						X

APPENDIX IV: PLAGARISM CHECK RESULT



Urkund Analysis Result

Analysed Document: OWACHI DEIRDRE proposal.pdf (D105842203)
Submitted: 5/21/2021 11:16:00 AM
Submitted By: fgithinji@ciu.ac.ug
Significance: 6 %

Sources included in the report:

Urkund Report - 16.02.2021 Final thesis- comments Pardon Feb 2021.docx (D96831917).pdf (D96833587)
16.02.2021 Final thesis- comments Pardon Feb 2021.docx (D96831917)
Some psychological correlates of suicidal ideation in a group of under graduate ... etc.pdf (D34334919)
NAGUTI PRISCILLA.pdf (D54375500)
02 REVIEW OF LITERATURE 160419.docx (D50835559)
MWOGERERA BETTY.pdf (D42865186)
MONGERA HESHIMA BETTY.pdf (D100314604)
dSSERTATION - Copy.docx (D78541825)
Priyadharshini K.docx (D59570254)
Sumnima Rai PhD Chapters for Plagiarism.docx (D97175531)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7669518/>
<https://www.dovepress.com/prevalence-and-factors-associated-with-depression-among-medical-studen-peer-reviewed-fulltext-article-AMEP>
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<https://www.hilarispublisher.com/open-access/dating-stress-depression-and-anxiety-symptoms-a-study-among-university-students-in-uganda.pdf>
https://www.researchgate.net/publication/342195680_Frequency_of_depression_anxiety_and_stress_among_university_students
<https://pubmed.ncbi.nlm.nih.gov/26880490/>
https://www.researchgate.net/publication/343432706_Prevalence_of_anxiety_depression_and_suicidal_ideation_symptoms_among_university_students_a_systematic_review
<http://etd.aau.edu.et/bitstream/handle/123456789/11506/Yelemwork%20Reserach.pdf?sequence=1&isAllowed=y>
https://www.researchgate.net/publication/262454339_Depression_among_university_students_in_Kenya_Prevalence_and_sociodemographic_correlates

APPENDIX V: CLEARENCE FROM THE DEAN



CLARKE | **IPHM**
INTERNATIONAL UNIVERSITY | School of Public Health
LEAD · INNOVATE · TRANSFORM | and Management

(+256) 0312 307400

www.ciu.ac.ug

28th September 2020

Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH

Greetings from Clarke International University formerly known as International Health Sciences University.

This is to introduce to you **Owachi Deidre Reg. No. 2019-MPH-FT-A02** who is a student of our University. As part of the requirements for the award of a Master of science in Public Health, the student is required to carry out field research for the submission of a Research Dissertation.

Owachi would like to carry out research on issues related to: **Depression and its associated factors among students of Clarke International University ,Kampala Uganda**

I therefore request you to render the student such assistance as may be necessary for the research.

I, and indeed the entire University are thanking you in anticipation for the assistance you will render to the student.

Sincerely yours,

Alage John Bosco

Dean, Institute of Public Health & Management



#Make a Difference



Plot 1717 | Bukasa | Kyeyitabya
P.O. Box 7782 Kampala, Uganda

APPENDIX V: APPROVAL LETTER FROM CIUREC



(+256) 0312 307400
rec@ciu.ac.ug
www.rec.ciu.ac.ug

29/11/2020

To: DEIRDRE OWACHI

CLARKE INTERNATIONAL UNIVERSITY
+256771414376 / +256791683125

Type: Initial Review

Re: CLARKE-2020-26: DEPRESSION AND ITS ASSOCIATED FACTORS AMONG STUDENTS OF CLARKE INTERNATIONAL UNIVERSITY, KAMPALA UGANDA., PDF, 2020-11-11

I am pleased to inform you that the Clarke International University REC, through expedited review held on 23/11/2020 approved the above referenced study.
Approval of the research is for the period of 29/11/2020 to 29/11/2021.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of 29/11/2021 in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Clarke International University REC:

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Go to Se