

**PREVALENCE AND DETERMINANTS OF DEPRESSION,
ANXIETY AND STRESS AMONG PRE-CLINICAL
MEDICAL STUDENTS AT THE LUSAKA APEX MEDICAL
UNIVERSITY: A CROSS SECTIONAL STUDY**

BY

**BWALYA KATEBE
2002000781**

Submitted in partial fulfilment of the requirements
of a degree of Masters in Public Health of the
Lusaka Apex Medical University,
Zambia.

Supervisors: Dr. Lydia Hangulu

: Mr. John Mathias Zulu

© SEPTEMBER 2022

DECLARATION

I hereby declare that this dissertation, unless otherwise indicated in the text, is my own original work. All citations, references and borrowed ideas have been duly acknowledged. This research work has not previously been submitted to any other University for any degree or examination purposes.

Name: Bwalya Katebe

Student Number: 2002000781

Date: September, 2022

DEDICATION

I would like to dedicate this study to my family and my friends and thank them for their invaluable support throughout my journey. I could never have done this without all their love and support. To my Mom and Dad, thank you for encouraging me to always aim high and be the best that you always knew I could be.

ABSTRACT

Background

Globally, mental health problems are the main obstacle to academic success as they can affect students' motivation, focus and social interactions, critical factors for student success. The most Prevalent Mental Disorders among University Students are Depression, Anxiety and Stress. Sources of mental illness include demographic, social, behavioral, and academic factors. Determining the prevalence and determinants of depression, anxiety and stress will encourage the development of informed strategies and policy making to promote mental health and prevent occurrences of mental disorders in higher educational institutions in Zambia

Methods

A cross-sectional survey was conducted with medical students attending a University in Zambia. Participants completed a self-administered online questionnaire consisting of the socio-demographic characteristics of students and the Depression, Anxiety, and Stress Scale (DASS-21), on which they responded by rating the extent to which they had experienced each symptom over the last week, ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time). The multivariate logistic regression was used to determine factors associated with depression anxiety and stress

Results

A total of 295 University students participated in the study with a mean age of 23(22-24) IQR. The prevalence of depression, anxiety and stress were 66.10%, 74.86% and 45.35%, respectively. Severe or extremely severe depression, anxiety and stress were noted among 85 (29%), 132 (45%) and 53 (18%) students, respectively. Depression, Anxiety and stress were significantly more frequent among female students (113(71.97%); $p=0.023$, 121(77.07%); $p=0.034$ and 85(58.62%); $p<0.001$, respectively). Being in 4th year was statistically associated high levels of anxiety (154(68.75%); $p=0.035$) while being single or living at a boarding house were associated with a higher score of stress (117(46.61%); $p = 0.041$ and 102(48.80%); $p=0.034$).

Conclusions

A substantial proportion of the students are suffering from depression, stress and particularly from anxiety. The findings may be useful for informed policy making and establishment of preventive measures and interventions for students to learn how to cope with these conditions positively and to improve the mental health of students with a view to enhancing their educational outcomes.

ACKNOWLEDGEMENTS

I would like to express my deep gratitude to Dr. Lydia Hangulu and Mr. John Mathias Zulu, my research supervisors, for their patient guidance, enthusiastic encouragement and useful critiques of this research work. This paper and the research behind it would not have been possible without their exceptional support, enthusiasm, knowledge and exacting attention to detail which have been an inspiration and kept my work on track.

Nobody has been more important to me in the pursuit of this project than the members of my family. I would like to thank my parents, whose love and guidance are with me in whatever I pursue.

I am grateful to my husband Juwani Lungu for being there, offering all the support in every way and also encouraging me to pursue my studies.

Deepest thanks to my great friend, Nomsa Kangale Chilenga who keeps me grounded, remind me of what is important in life and is always supportive of my endeavors.

I would like to express my very great appreciation to Dr. Theresa Chikopela – Sikazwe and Fiona Hingoma Kakoma for their valuable and constructive suggestions and support during my studies. Your willingness to give your time so generously has been very much appreciated.

I would also like to show gratitude to Dr. Yotham Phiri for sharing his pearls of wisdom with me during the course of this study.

Many thanks go to Sampa Namwawa and my cohort for their camaraderie and support. Your friendship made writing this report less of an isolating activity.

Most importantly, I would like to thank the almighty God who has brought me this far according to His good will. I dedicate my entire life to Him because he knows what is best for me always.

Table of Contents

DECLARATION -----	ii
DEDICATION -----	iii
ABSTRACT -----	iv
Background -----	iv
Methods -----	iv
Results -----	iv
Conclusions -----	iv
ACKNOWLEDGEMENTS -----	v
LIST OF ABBREVIATIONS -----	viii
CHAPTER ONE: INTRODUCTION -----	1
1.1. Background -----	1
1.2. Problem statement and justification -----	3
1.3. General objective -----	4
1.4. Specific objectives -----	5
1.5. Research questions -----	5
1.6. Research hypothesis -----	5
CHAPTER TWO: LITERATURE REVIEW -----	6
2.1. Mental Health problems in university students -----	6
2.2. Determinants of mental health disorders -----	8
2.3. Mental Health services for university students -----	8
2.4. Theoretical framework -----	9
2.4.1 Theories surrounding mental health -----	10
2.5 Conceptual Framework -----	10
CHAPTER THREE: METHODOLOGY -----	13
3.1. Study design and site -----	13
3.2. Sampling -----	13
3.3. Data collection -----	13
3.4. Data analysis -----	14
3.5. Ethics approval and consent to participate -----	14
CHAPTER FOUR: PRESENTATION OF RESULTS -----	15
4.1 Introduction -----	15
Table 1: Frequencies of stress, anxiety, and depression. -----	15

Table 2: Scoring frequencies of stress, anxiety, and depression.	16
Table 3: Depression Baseline characteristics table	17
Table 4: Anxiety Baseline characteristics table	18
Table 5: Stress Baseline characteristics table	20
Table 6: Factors associated with depression anxiety and stress using Multivariate Logistic Regression	22
CHAPTER FIVE: DISCUSSION OF RESULTS	24
CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS	27
6.1. Conclusion	27
6.2. Recommendation	27
6.3. Areas for further research	27
6.4. Limitations	27
REFERENCES	28
APPENDIX 1: Consent and Demographic information	40
APPENDIX 2: DASS-21 Questionnaire responses	62
APPENDIX 3: Gantt Chart	74
APPENDIX 4: Budget	75

LIST OF ABBREVIATIONS

DASS	Depression Anxiety and Stress scale
LAMU	Lusaka Apex Medical University
LMICs	Low Middle-Income Countries
IQR	Inter Quartile Range
AOR	Adjusted Odds Ratio
CI	Confidence Interval
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1. Background

Mental health is considered to be an essential and integral component of health. The World Health Organization (WHO) constitution states that, *“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”*, which implies that mental health is more than just the absence of mental disorders or disabilities (WHO, 2018). Furthermore, the WHO constitution also states that *“Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community”* (WHO, 2018). Mental health is a spectrum on which everyone falls and moves along and it spans from mentally well to mentally ill (Brown, 2016). According to the WHO constitution, *“Mental health is fundamental to our collective and individual ability as humans to think, emote, interact with each other, learn, earn a living and enjoy life”* therefore, the promotion, protection and restoration of mental health is regarded as vital for individuals, communities and societies throughout the world (WHO, 2018).

It is estimated that 10-20% of children and adolescents worldwide suffer from mental illness (Jörns-Presentati et al., 2021). In the latest systematic review focusing solely on the prevalence of mental health problems in sub-Saharan African children, 1 in 7 children and adolescents (14.3%) have serious mental health problems and 1 in 10 (9.5%) were reported to be eligible for psychiatric diagnosis (Jörns-Presentati et al., 2021). The prevalence of mental distress, globally, ranges from 17.70% to 41.1% (Teshome et al., 1970), regionally about 21.6% (Dessie, Ebrahim and Awoke, 2013) and about 20% in Zambia (Munakampe, 2020). The most common mental illnesses in Zambia are acute psychotic episodes, schizophrenia, mood disorders, alcohol-related problems and organic brain syndrome (Mayeya et al., 2004).

“The exact cause of most mental illnesses is unknown, but research reveals that many of these illnesses are caused by a combination of biological, psychological, and environmental factors” (Causes of Mental Illness, 2022). The Possible causes of mental illness in Zambia include stressful family relationships, infectious diseases such as HIV, malaria, meningitis and syphilis and the dependence and use of alcohol and other psychotropic drugs (Munakampe, 2020). Mental disorders are a major challenge that have become a critical public health problem for college students and according to epidemiological studies, between 25.2% and 44.0% of university students had symptoms of anxiety and between 15.6% and 42.0% of university students had

symptoms of depression (Zhang et al., 2021). Mental health problems in infancy and adolescence increase the risk of academic decline and represent a need for recognition and treatment to ensure equal educational opportunities (Agnafors, Barmark and Sydsjö, 2020). Mental health illnesses affect a student's level of fitness, concentration, credibility, intellectual ability, optimism and can affect overall performance and lead to students dropping out of school (Consequences of Student Mental Health Issues | Suicide Prevention Resource Center, 2022). Symptoms of mental health illness include change in functioning, withdrawal and unusual behaviour (Mental illness - Symptoms and causes, 2022)

College students are in a significant transition from adolescence to adulthood and at this time, environmental changes, academic pressures or obstacles to their life goals may make them vulnerable to anxiety and depression, which are the main reasons for dropping out of school and even committing suicide (Lew et al., 2019). According to a recent study, around 24% of college students were found to be at risk for suicide, therefore, it is extremely appropriate to develop strategies to identify anxiety and depression at an early stage (Becker, Dvorsky, Holdaway and Luebke, 2018). The treatment methods for mental illness include selfcare, medication and therapy (Mental illness - Symptoms and causes, 2022)

Globally, there is a significant gap between the level of mental health needs and the availability of quality services to adequately meet those needs, particularly in low and middle-income countries (LMICs), in Africa as elsewhere, where it is estimated that between 76% and 99% of people with severe mental disorders do not have access to the kind of treatment they need for their mental health problems (Faydi et al., 2011). Clinical studies have shown that locally available and affordable community and primary care interventions are effective in managing mental illness, even though Mental health resources are very scarce and investment in mental health is at 1% of the medical budget in many countries (Patel, 2007). Over time, the number of front-line mental health professionals and staff in Zambia has declined due to "brain drain", retirement, death and poor performance of training institutions therefore, the situation in Zambia's mental health services can be explained as critical and requires urgent attention (Mayeya et al., 2004). *The vast majority of people with mental illness do not receive evidence-based care, leading to chronicity, distress, and increased costs of care* (Patel, 2007).

1.2.Problem statement and justification

The degree of mental illness and mental health symptoms between adolescents of the general population and vulnerable adolescents living in sub-Saharan Africa since 2008, shows prevalence in the general population being 26.9% of depression (IQR 20.1–31.1), 29.8% anxiety disorders (IQR 18.6–36.65), 40.8% emotional and behavioural problems (IQR 31.2 -41.4), 21.5% for PTSD and 20.8% for suicidal ideation (IQR 13.2-23.6) (Jörns-Presentati et al., 2021). In Zambia, most of the published literature provides little information about whether mental health literacy is an effective strategy to influence the perception of mental illness in young adults (Mwambwa-Johnson, 2021). A study done by Chabili and Simuyemba, (2020) on the Prevalence of Stress and Coping Strategies among Undergraduate Medical Students at Ridgeway Campus of the University of Zambia, recorded the prevalence of moderate to severe stress being 53.03%. In a study to evaluate the global prevalence of depression and anxiety symptoms among college students and potential associated factors, it was discovered that the prevalence of depression symptoms among medical college students was 39.4%, 95% CI 29.3-49.6% and that of anxiety was 47.1%, 95% CI 35.1-59.1% (Li et al., 2022)

Mental health problems have been shown to have a negative impact on students' academic performance, with depression, stress, anxiety and sleep disorders being the most common factors cited by students (Lee & Jung, 2018). Over the past decade, increasing rates of college students with symptoms of depression, stress and anxiety have been observed around the world (Lattie et al., 2019). Additionally, diagnosed depression has been linked to decreased academic performance and health problems such as back pain, diabetes, irritable bowel syndrome, and migraines (Lee & Jung, 2018). Mobile applications and other digital mental health programs are increasingly being explored as tools to supplement or enhance care in higher education and digital mental health programs have the potential to provide self-management tools and help students find the right services on campus, with the effectiveness of digital graduate programs in mental health having been proven (Lattie, Cohen, Winkvist and Mohr, 2020). A systematic review found that most college students' digital mental health interventions were effective in producing changes in psychological outcomes such as depression and anxiety, but few of the tested programs were publicly available and fewer were delivered through Applications (Lattie et al., 2019).

Many students have a low psychological health competition and do not recognize a treatment, but believe that these symptoms of depression, stress and anxiety are recycled with a typical university stress and therefore, there is no treatment (Lattie et al., 2019). Students however, who recognize the need for mental health services often face multiple barriers to accessing care, because they find the care available to them inconvenient and are sceptical about the effectiveness of care (Lattie et al., 2019). A study done by Kapungwe et al., (2011) demonstrated that stigma and discrimination against mental illness and those affected are pervasive and insidious in the Zambian society and in the general public, among patients' family members, among general and mental health service providers and at governmental level. Brown, (2016) postulated that medical students feared being stigmatized potentially because of fitness to practise issues. Unfortunately, when students try to manage their mental health problems, they do not always turn to healthy coping mechanisms (Lee and Jung, 2018). If not addressed, they develop into other vices such as substance abuse, excessive alcohol and tobacco use, among others, which can lead to more complex disorders, addictions, self-harm and even dropping out of school (Chung and Hudziak, 2017). *Published literature on mental illness in Zambia exists* but is focused mainly on adolescents and there are not many interventions available (Mwambwa-Johnson, 2021). Mobile health (M-health) is a novel way of delivering health care in LMICS yet studies that focus on mobile health for mental illnesses among students in Zambia are yet to be found.

This study aims at determining the prevalence of depression, anxiety and stress among students which will lead to the development of an application to see its efficacy in managing these symptoms by increasing awareness, devising prevention measures, diagnosis, treatment and provision of on-going care and support to medical students living with mental conditions at Lusaka Apex Medical University [LAMU], an institution of higher learning in Zambia.

1.3.General objective

To determining the prevalence and determinants of depression, anxiety and stress among students at Lusaka Apex Medical University (LAMU), in order to encourage the development of informed strategies and policy making to promote mental health and prevent occurrences of mental disorders in higher educational institutions in Zambia.

1.4. Specific objectives

1. To determine the prevalence of depression, anxiety and stress among LAMU medical students.
2. To assess determinants of depression, anxiety and stress among LAMU medical students.

1.5. Research questions

2. What is the prevalence of depression, anxiety and stress among LAMU students?
3. Do the majority of LAMU students know about anxiety, stress and depression?

1.6. Research hypothesis

H0 Assessment of determinants and prevalence of depression, anxiety and stress will result in none of the medical students living with anxiety, stress and depression at Lusaka Apex Medical University.

H1 Assessment of determinants and prevalence of depression, anxiety and stress will result in medical students living with anxiety, stress and depression at Lusaka Apex Medical University.

CHAPTER TWO: LITERATURE REVIEW

2.1. Mental Health problems in university students

Mental health problems are a growing public health concern worldwide and around 14% of the global burden of disease is attributed to neuropsychiatric disorders, the main of which is depression, alcohol abuse and psychosis (Kajitani et al., 2020). This is particularly evident in adolescents between the ages of 16 and 29, who face many challenges in the transition from childhood to adulthood, when 70% of all mental illnesses occur (Wiljer et al., 2020). College students are of particular concern because they have significantly higher rates of mental health problems than the general public (Lee and Jung, 2018). College students around the world are at risk for mental health disorders due to the variety of stressors they are exposed to and while they share similarities with individuals in the general population, they have been found to be at greater risk of negative psychological consequences because they are exposed to two sources of transition stressors: stress related to transition from being a high school to college student and stress related to the transition from adolescence to adulthood (Aldiabat, Matani and Le Navenec, 2014).

According to WHO (2018), *“Poor mental health is associated with rapid social change, stressful work conditions, gender discrimination, social exclusion, unhealthy lifestyle, physical ill-health and human rights violations.”* There is evidence that there are factors within academic institutions that negatively affect the psychological well-being of university students (Aldiabat, Matani and Le Navenec, 2014). Another study found that factors influencing students' mental health include vulnerability, self-adjustment to academic performance, financial problems, a history of mental illness and relationships with friends and family, which have the potential to affect academic performance (Auttama, Seangpraw, Ong-Artborirak and Tonchoy, 2021).

Students currently studying in health sciences need to focus their academic learning on theoretical and practical training, in the classroom and in the community and as a result, they may experience stress and anxiety, which can affect their mental health, resulting in lower academic learning efficiency (Auttama, Seangpraw, Ong-Artborirak and Tonchoy, 2021). The most Prevalent Mental Disorders among University Students are Depression, Anxiety and Stress (Aldiabat, Matani and Le Navenec, 2014). A study by Ramón-Arbués et al., (2020), on the Prevalence of Depression, Anxiety and Stress and their associated actors in College Students revealed that in a sample of

1074 college students, moderate prevalence of depression (18.4%), anxiety (23.6%) and stress (34.5%) symptoms were found in the study population.

Depression is a common intellectual disease affecting greater than 264 million human beings globally and is characterised through chronic unhappiness and a loss of hobby or satisfaction in formerly profitable or exciting activities that also can disturb sleep and urge for food and presents with tiredness and poor concentration (Team, 2022). Depression is the most commonly diagnosed mental illness among college students in several countries, including Spain, England, Australia and the United States as it has been discovered that 43.2% of students have depressive symptoms so severe that it is challenging to function in college as these depressive symptoms result in poorer academic performance in affected students and increased frailty, intrusive thoughts, intrusive thought control and sleep disorders (Aldiabat, Matani and Le Navenec, 2014).

“Anxiety is an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure” (Anxiety, 2021). Symptoms of anxiety include nervousness, discomfort, an imminent sense of danger or ruin, sweating and tremors, lack of concentration, uncontrollable worry and insomnia, but generalized anxiety disorder is characterized by restlessness, malaise and difficulty maintaining concentration (Heckman, 2019). According to a study done by Mohamad, Sidik, Akhtari-Zavare and Gani, (2021), on the prevalence risk of anxiety and its associated factors among university students in Malaysia, *“financial support for the study, alcohol consumption, poor sleep quality, body mass index (BMI), having a good friend in the university, having doubt regarding the future, being actively involved in the society and having problems with other students and lecturer(s) are significantly associated with the risk of anxiety.”*

Stress can be defined as *“any type of change that causes physical, emotional, or psychological strain”* (Scott, 2020). College students often experience stress due to increased responsibility, poor time management, changes in eating and sleeping habits and lack of adequate breaks for self-sufficiency (College Stress – Learning Center, 2021). Many college students who experience stress use ineffective coping mechanisms to deal with their stressors and a significant number of them use addictive behaviours to deal with stressors related to the academic environment (Aldiabat,

Matani and Le Navenec, 2014). Stress is an inevitable part of life that can affect the physical, emotional health and academic success of students unless they are taught how to manage it appropriately (Communications, 2021).

2.2.Determinants of mental health disorders

“Medical education is generally perceived as being stressful because it is a full-time commitment and responsibility of students that entails academic tasks, activities, social conduct, support and care provided to patients. On joining medical college, students embark their professional journey with high expectations and are loaded with lots of new information to be crammed which at times becomes difficult to process. Most students leave the protected, pampered, and very supportive environment of their family and come to stay in hostel under a highly competitive environment. Mental health of a medical student remains affected throughout training due to long study and working hours, extensive course content, examinations, peer competition, un-inspiring environments, sleep deprivation and loneliness including other factors interfering in everyday personal, social and family life” (Sachdeva, 2018).

Factors including age, gender, self-esteem, sleep quality and living arrangements of college students have been cited as determinants of stress, anxiety and depression (Ramón-Arbués, 2020).

2.3.Mental Health services for university students

Mental health problems are the main obstacle to academic success and mental illness can affect students' motivation, focus and social interactions, which are critical factors for student success in higher education (Son, Hegde, Smith, Wang & Sasangohar, 2020). Although evidence-based interventions are available for many children's mental health problems, treatment options are limited and many children and adolescents may or may not have access to appropriate help (Grist, Porter, & Stallard, 2017). Many students have low psychological competence and do not see the need for treatment, but instead believe that these symptoms of depression and anxiety are typical of college stress and therefore do not warrant treatment (Lattie et al., 2019). Students who recognize the need for mental health services often face multiple barriers to accessing care or find the care available to them inconvenient, and are skeptical about the efficacy of care (Lattie et al., 2019).

Despite widespread recognition of the importance of promoting mental health and preventing psychiatric disorders in youth, current evidence shows that only a small proportion of youth with a mental disorder receive mental health care (Kajitani et al., 2020). Similarly, the World Health Organization World Mental Health Surveys were used to examine the associations of mental disorders with college entry and attrition by comparing college students ($n = 1,572$) and nonstudents in the same age range (18–22; $n = 4,178$), including nonstudents who recently left college without graduating ($n = 702$) based on surveys in 21 countries (4 low/lower-middle income, 5 upper middle-income, 1 lower-middle or upper-middle at the times of two different surveys, and 11 high income) in which lifetime and 12-month prevalence and age-of-onset of DSM-IV anxiety, mood, behavioral and substance disorders were assessed with the Composite International Diagnostic Interview and it was found that only 16.4% of college students with mental disorders received medical treatment for their mental disorders (Auerbach et al., 2017), suggesting that students are hesitant to consult a psychiatrist or psychologist for their mental health problems (Kajitani et al., 2020).

A study by Munakampe, (2020), on Strengthening mental health systems in Zambia, revealed that *“the key barriers to care in include inadequate funding, few human resources, poor infrastructure and stigma.”* According to Kapungwe et. al., (2011) *“Mental illness stigma and discrimination is pervasive across Zambian society, prevailing within the general community, amongst family members, amid general and mental health care provider, and at the level of government and such stigma appears to be fueled by misunderstandings of mental illness etiology; fears of contagion and the perceived dangerousness of people with mental illness and associations between HIV/AIDS and mental illness”* this possess a hindrance to the willingness to access mental health services by students.

2.4. Theoretical framework

The five schools of thought that attempt to explain mental health are Behaviorism, Biological or medical, Psychodynamic, Cognitive and Humanistic schools of thought and these theories guide the therapist's services and interactions with clients (Miller, 2022).

2.4.1 Theories surrounding mental health

2.4.1.1 *The Network theory*

This theory explains that “mental disorders arise from direct interactions between symptoms” (Borsboom, 2017). In recent years, the network approach in psychopathology has been further developed as an alternative to conceptualize mental disorders and it studies how biological, psychological, and societal influences facilitate the connection between Psychopathological symptoms (Miller, 2022).

2.4.1.2 *The Cognitive-behavioural therapy*

“Cognitive-behavioural therapy (CBT) is based on the idea that how we think (cognition), how we feel (emotion) and how we act (behaviour) all interact together. Specifically, our thoughts determine our feelings and our behaviour” (McLeod, 2019). CBT focuses on assisting the person in changing destructive thoughts and behaviours and is a type of psychotherapy that helps a client to quickly identify and manage problems and is effective in treating anxiety

2.4.1.3 *The Operant conditioning approach*

“Operant conditioning is a theory of learning in behavioral psychology that emphasizes the impact that rewards and punishments for certain behaviors can have on future actions still is a popular approach (DuBois-Maahs, 2022). When used by therapists and fitness trainers, the point is to identify reward patterns for cue routines with the aim of changing a person's behavior by changing routines and sometimes rewards, effective in treating OCD (Miller, 2022).

2.5 Conceptual Framework

According to the theoretical considerations of the network approach defined above the adapted Borsboom conceptual framework in figure 1 shows how conditions that can influence symptoms from outside the network that include biological, psychological and societal conditions, form the external field of the symptoms. Changes in the external field may activate symptoms in the network (Borsboom, 2017).

According to Borsboom, 2017, “Methodological research within this approach has focused on developing statistical techniques designed to identify network structures among psychiatric symptoms from empirical data and these techniques have now been applied to a range of constructs, such as depression, anxiety disorders, post-traumatic stress, complex bereavement,

autism, psychotic disorders, substance abuse, the general structure of psychiatric symptomatology, diagnostic manuals themselves, health-related quality of life, and personality traits.”

Figure 1 is a symptom network of four symptoms, namely, anxiety, depression, stress and poor academic performance. If two symptoms have the tendency to activate each other, they are connected by a line (Borsboom, 2017). The adapted Borsboom symptom network below shows how the influence of external field symptoms in the life of a student can lead to development of depression, anxiety or stress, that will in turn lead to poor academic performance. Mental illness can happen as a result of academic work overload of an individual beyond personal capacity however, mental health is relational or transactional and is dependent on an individual’s appraisal of the stressors they face.

The network theory predicts that the presence of one problematic pattern of nodes increases the likelihood of the presence of another problematic pattern, which is to say that, the presence of one disorder should lead us to expect that other disorders may also be present (Jones and Robinaugh, 2021). The framework therefore, shows how development of depression could lead to anxiety or stress, development of stress could lead to depression or anxiety and development of anxiety could lead to depression or stress which could all eventually lead to poor academic performance in university students.

The network theory is being used in this study to conceptualize the determinants in the external field that could lead to depression anxiety or stress in individuals who have not yet activated the network symptoms and the likelihood of the presence of another problematic pattern or the materialization of poor academic performance in individuals with activated network symptoms.

This framework was adapted to suite this study

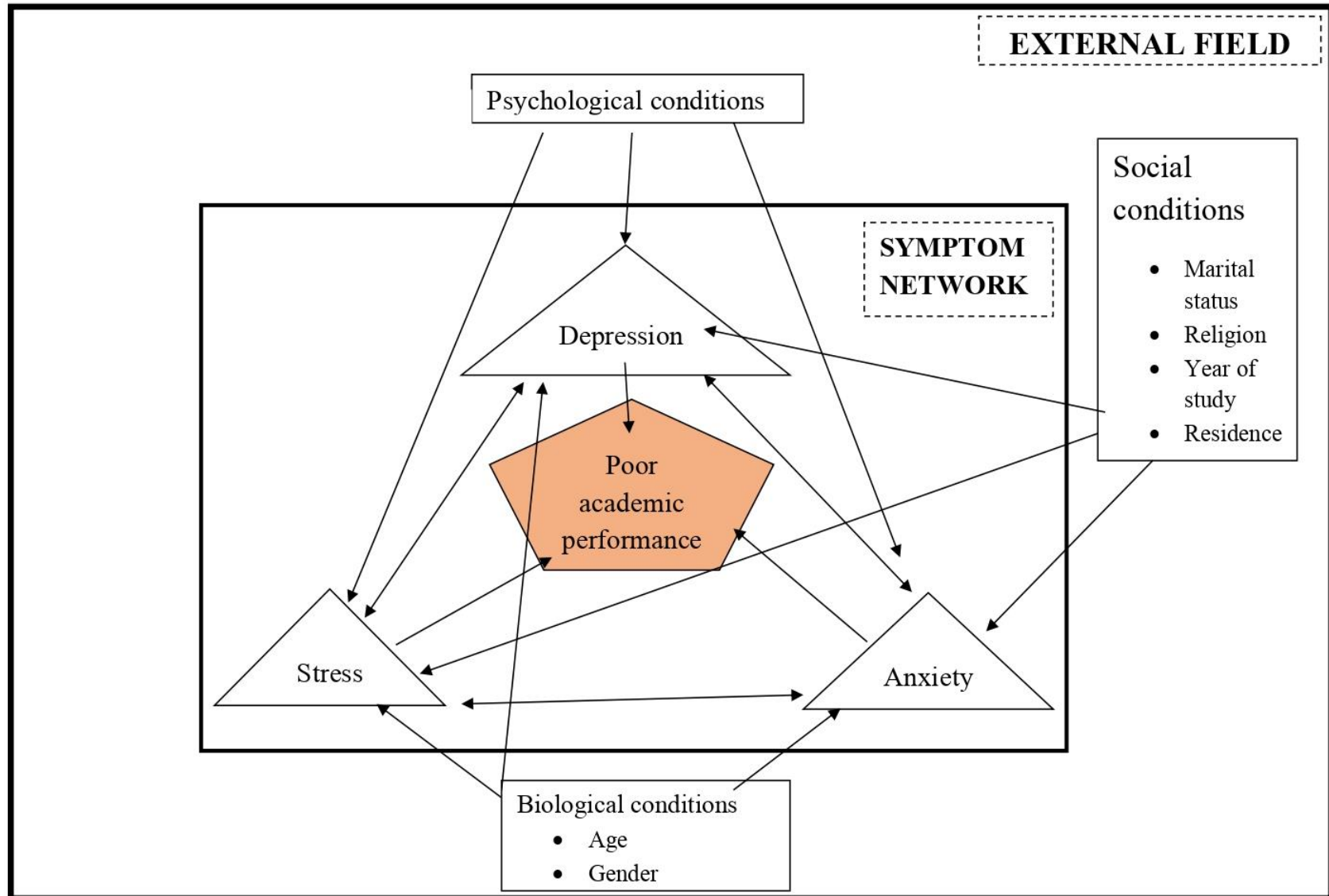


Figure 1: Conceptual framework for poor academic performance due to mental illness (Adapted from Borsboom, 2017)

CHAPTER THREE: METHODOLOGY

3.1. Study design and site

A cross-sectional survey was used to determine the prevalence of anxiety, stress and depression among LAMU pre-clinical medical students at the faculty of medicine of the Lusaka Apex Medical University. This cross-sectional study was conducted using an online questionnaire consisting of three parts, the consent to participate in the study, the socio-demographic characteristics of students and the third section comprising of the Depression, Anxiety, and Stress Scale (DASS-21) (Lovibond, 1995) in the English language from 03 to 14 August 2022.

3.2. Sampling

A stratified random sampling strategy was utilized focusing on recruiting 3rd and 4th year finalist students. The online questionnaire was disseminated to two final year pre-clinical classes of the faculty of medicine at LAMU which were to be used for sample selection. There were 284 first year and 234 second year finalist students under pre-clinical studies giving a total of 518 students.

We expected to select a sample of about 111 participants from each class based on the OpenEpi, Version 3, open-source calculator. The total desired sample size was 221.

3.3. Data collection

The questionnaire link was disseminated to the classes using WhatsApp and respondents were encouraged to pass it on to others. Participants completed the questionnaire individually in an estimated mean time of 5 min through an online survey platform. Ethical research standards were complied with by providing information on the project and requesting consent to participate in all cases for which, all respondents provided informed consent.

The structured questionnaire consisted of socio-demographic data questions that include age, gender, marital status, religion, year of study and residence and self-reported stress, anxiety, and depression questions. Respondents were asked to fill out the questionnaire according to their experience in the past week.

Stress, anxiety, and depression were assessed using the Depression, Anxiety, and Stress Scale (DASS-21). Depression subscales included seven questions. The total depression subscale score was considered normal (0–9), mild (10–12), moderate (13–20), severe (21–27), and extremely severe (28–42). Anxiety subscales included seven questions. The total anxiety subscale score was considered normal (0–6), mild (7–9), moderate (10–14), severe (15–19), and extremely severe (20–

42). Stress subscales included seven questions. The total stress subscale score was considered normal (0–10), mild (11–18), moderate (19–26), severe (27–34), and extremely severe (35–42). The test interpretation was done under the questionnaire guideline and overall, the scores for each subscale were calculated by summing the scores of the relevant items and multiplying by 2 to calculate the final score.

3.4.Data analysis

Data entry was done in STATA 14. The Mean measure was used for descriptive statistics of scale data, and frequencies and percentages for categorical data. For association of depression, anxiety and stress and the social demographic factors chi square and fishers exact were used for bi-variate analysis and to adjust for confounding and further associations between the explanatory variables and outcome variables (depression, anxiety and stress) a multivariate logistic regression was used. Associations were considered significant at p value of < 0.05 .

3.5.Ethics approval and consent to participate

Ethical approval for this study was obtained from the Lusaka Apex Medical University Ethics Committee LAMUBREC prior to commencement of data collection. Participants were informed about the study and consent by each participant was obtained. Participants were engaged on voluntary basis and without any form of coercion.

Confidentiality of all the information gathered was practiced by ensuring anonymity of participants files by not using names but student ID numbers on the questionnaires.

Privacy was maintained by only allowing the principal investigator and research supervisor to handle and view the filled in questionnaires. the gathered information will be used for academic purposes and disseminating it to relevant authorities only.

CHAPTER FOUR: PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the findings by first outlining the frequencies of stress, anxiety and depression and then describing scoring frequencies of stress anxiety and depression. the demographic characteristics of the participants. The baseline characteristics of depression anxiety and stress are thereafter, outlined followed by Factors associated with depression anxiety and stress using Multivariate Logistic Regression.

Table 1: Frequencies of stress, anxiety, and depression.

Variable		Frequency	Percentage
Age (median)IQR		23(22-24)IQR	
Depression	Not depressed	100	33.90%
	Depressed	195	66.10%
Anxiety	Not anxious	83	28.14%
	Anxious	212	74.86%
Stress	Not stressed	147	54.65%
	Stressed	122	45.35%

The median age was 23(22-24) IQR. More students were found to be depressed (195(66.10%)) than not depressed (100(33.90%)), which was true for anxiety also with 212 (74.86%) being anxious and 83 (28.14%) not being anxious. On the contrary, more students were not stressed (147(54.65%)) than stressed (122(45.35%)).

Table 2: Scoring frequencies of stress, anxiety, and depression.

Category	Depression			Anxiety			Stress		
	Frequency	Percentage	score	Frequency	Percentage	score	Frequency	Percentage	score
Normal	100	34%	0-9	83	28%	0-7	147	50%	0-14
Mild	48	16%	10-13	20	7%	8-9	41	14%	15-18
Moderate	62	21%	14-20	60	20%	10-14	54	18%	19-25
Severe	34	12%	21-27	38	13%	15-19	41	14%	26-33
Extremely Severe	51	17%	28+	94	32%	20+	12	4%	34+
Total	295	100%		295	100%		295	100%	

The score for normality of depression was 0-9 and the number of students that were normal in the study sample amounted to 100(34%). The score for mild depression was 10-13 and the number of students having mild depression was 48(16%). Moderate depression on the other hand had a score of 14-20 and 62(21%) of the sample had moderate depression. Severe depression had a score of 21-27, of which 34(12%) of the students had severe depression. The extremely severe depression score was 28 and above and the number of students having extremely severe depression were 51(17%) of the sample.

Students that were normal when it comes to anxiety had a score of 0-7 and these amounted to 83(28%). Students with mild anxiety had a score of 8-9 which amounted to 20(7%). Moderate anxiety had a score of 10-14 and the number of students that scored this was 60(20%). Severe anxiety was scored at 15-19 and 38(13%) of the students had severe anxiety. Students with extremely severe anxiety had a score of 20 and above and the number of students scoring this was 94(32%) of the sample size.

Normal stress had a score of 0-14 and 147(50%) students were found to be normal. Mild stress was scored at 15-18 and 41(14%) of the students had mild stress. The moderate stress score was 19-25 and 54(18%) of the students had moderate stress. Severe stress was scored at 26-33 of which 41(14%) of the students had severe stress. The score for extremely severe stress was 34 and above and the number of students that had extremely severe stress was 12(4%) from the sample size.

Table 3: Depression Baseline characteristics table

Variable		Not depressed	Depressed	p-value
Age		23.5(20-36)IQR	23(19-40)IQR	0.001*
Gender	Female	44(28.03%)	113(71.97%)	0.023*
	Male	56(40.58%)	82(59.42%)	
Marital status	Divorced	1(100.00%)	0(0.00%)	0.243F
	Married	8(50.00%)	8(50.00%)	
	Separated	0(0.00%)	1(100.00%)	
	Single	91(32.97%)	185(67.03%)	
	Widowed	0(0.00%)	1(100.00%)	
Religion	Other	0(0.00%)	2(100%)	0.524F
	Christian	97(34.64%)	183(65.36%)	
	Islam	3(23.08%)	10(76.92%)	
Year of study	3rd Year	21(29.58%)	50(70.42%)	0.377
	4th year	79(35.27%)	145(64.73%)	
Residence	Boarding house	72(31.17%)	159(68.83%)	0.060
	home	28(43.75%)	36(56.25%)	

*=means p-value less than 0.05. significant. F=fisher's exact test

The median age for students who were not depressed was 23.5(20-36) IQR while that of students who were depressed was 23(19-40) IQR. This proved to be evidently significant with a p-value of 0.001.

According to gender distribution, more females were noted to be depressed (113(71.97%)) than not depressed (44(28.03%)) and the same was noted for males with 82(59.42) being depressed 56(40.58) not being depressed. This proved to be significant with a p-value of 0.023.

According to marital status distribution, students who were single had the majority being depressed (185(67.03%)) than not depressed (91(32.97%)) as compared to the married students who had equal numbers being depressed (8(50%)) than not depressed (8(50%)). This was not significant as noted by the p-value = 0.243.

The religion distribution had more Christians being depressed (183(65.36%)) than not depressed (97(34.64%)) and the same was noted for Islam with 10(76.92) being depressed 3(23.08) not being depressed. This was not significant as noted by the p-value = 0.524.

The year of study distribution had more 3rd year students being depressed (50(70.42%)) than not depressed (21(29.58%)) and the same was noted for the 4th year students with 145(64.73%) being depressed 79(35.27%) not being depressed. This was not significant as noted by the p-value = 0.377.

The residence distribution showed more students living at a boarding house being depressed (159(68.83%)) than not depressed (72(31.17%)) and the same was noted for students living at home with 36(56.25%) being depressed 28(43.75%) not being depressed. This was not significant as noted by the p-value = 0.060.

Table 4: Anxiety Baseline characteristics table

Variable		Not Anxious	Anxious	p-value
Age		24(20-35)IQR	23(19-40)IQR	0.0003*
Gender	Female	36(22.93%)	121(77.07%)	0.034*
	Male	47(34.06%)	91(65.94%)	
Marital status	Divorced	0(0.00%)	1(100.00%)	0.919F
	Married	5(31.25%)	11(68.75%)	
	Separated	0(0.00%)	1(100.00%)	
	Single	78(28.26%)	198(71.74%)	
	Widowed	0(0.00%)	1(100.00%)	
Religion	Other	1(50.00%)	1(50.00%)	0.156F
	Christian	81(28.93%)	199(71.07%)	
	Islam	1(7.69%)	12(92.31%)	
Year of study	3rd Year	13(18.31%)	58(81.69%)	0.035*
	4th year	70(31.25%)	154(68.75%)	
Residence	Boarding house	62(26.84%)	169(73.16%)	0.347
	home	21(32.81%)	43(67.19%)	

*=means p-value less than 0.05. significant. F=fisher's exact test

The median age for students who were not anxious was 24(20-35) IQR while that of students who were anxious was 23(19-40) IQR. This proved to be evidently significant with a p-value = 0.0003.

According to gender distribution, more females were noted to be anxious (121(77.07%)) than not anxious (36(22.93%)) and the same was noted for males with 91(65.94%) being anxious 47(34.06%) not being anxious. This proved to be significant with a p-value of 0.034.

According to marital status distribution, students who were single had the majority being anxious (198(71.74%)) than not anxious (78(28.26%)) and the same was noted for married students with 11(68.75%) being anxious than not anxious (5(31.25%)). This was not significant as noted by the p-value = 0.919.

The religion distribution had more Christians being anxious (199(71.07%)) than not anxious (81(28.93%)) and the same was noted for Islam with 12(92.31%) being anxious 1(7.69%) not being anxious. This was not significant as noted by the p-value = 0.156.

The year of study distribution had more 3rd year students being anxious 58(81.69%)) than not anxious (13(18.31%)) and the same was noted for the 4th year students with 154(68.75%) being anxious 70(31.25%) not being anxious. This was significant as noted by the p-value = 0.035.

The residence distribution showed more students living at a boarding house being anxious (169(73.16%)) than not anxious (62(26.84%)) and the same was noted for students living at home with 43(67.19%) being anxious 21(32.81%) not being anxious. This was not significant as noted by the p-value = 0.347.

Table 5: Stress Baseline characteristics table

Variable		Not Stressed	Stressed	p-value
Age		23(20-36)IQR	22(19-39)IQR	0.0001*
Gender	Female	60(41.38%)	85(58.62%)	<0.001*
	Male	87(70.16%)	37(29.84%)	
Marital status	Divorced	1(100.00%)	0(0.00%)	0.041*F
	Married	12(80.00%)	2(20.00%)	
	Separated	0(0.00%)	1(100.00%)	
	Single	134(53.39%)	117(46.61%)	
	Widowed	0(0.00%)	1(100.00%)	
Religion	Other	1(50.00%)	1(50.00%)	0.999F
	Christian	139(54.72%)	115(45.28%)	
	Islam	7(53.85%)	6(46.15%)	
Year of study	3rd Year	29(46.03%)	34(53.97%)	0.117
	4th year	118(57.28%)	88(42.72%)	
Residence	Boarding house	107(51.20%)	102(48.80%)	0.034*
	home	40(66.67%)	20(33.33%)	

*=means p-value less than 0.05. significant. F=fisher's exact test

The median age for students who were not stressed was 23(20-36) IQR while that of students who were stressed was 22(19-39) IQR. This proved to be evidently significant with a p-value = 0.0001.

According to gender distribution, more females were noted to be stressed (85(58.62%)) than not stressed (60(41.38%)) and the opposite was noted for males with 37(29.84%) being stressed 87(70.16%) not being stressed. This proved to be significant with a p-value = <0.0001.

According to marital status distribution, students who were single had the majority being not stressed (134(53.39%)) than stressed (117(46.61%)) and the same was noted for married students with 12(80.00%) being not stressed than stressed 2(20.00%). This was significant as noted by the p-value = 0.041.

The religion distribution had more Christians being not stressed (139(54.72%)) than stressed (115(45.28%)) and the same was noted for Islam with 7(53.85%) being stressed 6(46.15%) not being stressed. This was not significant as noted by the p-value = 0.999.

The year of study distribution had more 3rd year students being stressed (34(53.97%)) than not stressed (29(46.03%)) and the opposite was noted for the 4th year students with 88(42.72%) being stressed 118(57.28%) not being stressed. This was not significant as noted by the p-value = 0.117.

The residence distribution showed more students living at a boarding house being not stressed (107(51.20%)) than stressed (102(48.80%)) and the same was noted for students living at home with 40(66.67%) being not stressed 20(33.33%) being stressed. This was significant as noted by the p-value = 0.034.

Table 6: Factors associated with depression anxiety and stress using Multivariate Logistic Regression

Variable		Depression			Anxiety			Stress		
		AOR	95%CI	P-value	AOR	95%CI	P-value	AOR	95%CI	P-value
Age		0.863	0.78-0.96	0.005*	0.87	0.79-0.97	0.011*	0.9	0.80-1.02	0.094
Gender	Female	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	Male	0.69	0.41-1.17	0.168	0.71	0.41-1.22	0.212	0.33	0.19-0.57	<0.001*
Marital status	Divorced	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	Married	1.82	0.46-7.12	0.392	2.43	0.57-10.38	0.232	0.81	0.16-4.06	0.797
	Separated	-	-	-	-	-	-	-	--	-
	Single	-	-	-	-	-	-	-	--	-
	Widowed	-	-	-	-	-	-	-	--	-
Religion	Other	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	Christian	0.38	0.90-1.62	0.192	1.4	0.80-24.42	0.817	0.23	0.122-3.90	0.301
	Islam	-	-	-	10.34	0.29-371.97	0.201	0.379	0.17-8.59	0.542
Year of study	3rd Year	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	4th year	0.84	0.45-1.57	0.591	0.57	0.28-1.13	0.106	0.64	0.34-1.21	0.171
Residence	Boarding house	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	home	0.61	0.32-1.18	0.141	0.76	0.36-1.51	0.435	0.5	0.24-1.06	0.071*

*=means p-value less than 0.05. significant. F=fisher's exact test

Table 5 above indicates that the factors associated with depression levels among the students were a unit increase in gender (i.e., male compared to females), marital status (i.e., divorced compared to married), Religion (i.e., Christianity compared to Islam and other), year of study (i.e., 3rd year students compared to 4th year students) and residence (i.e., students living in a boarding house compared to students living at home). Compared to female students, male students (aOR= 0.69, 95% CI: 0.41-1.17, p=0.168), compared to divorced students,

married students (aOR= 1.82, 95% CI:0.46-7.12, p=0.392), compared to other, Christianity (aOR= 0.38, 95% CI: 0.90-1.62, p= 0.192), compared to 3rd year students, 4th year students (aOR= 0.57, 95% CI:0.80-1.42, p=0.591), compared to students living at a boarding house, students living at home (aOR= 0.61, 95% CI:0.34-1.18, p=0.141), were associated with higher levels of depression.

Adjusting for other factors associated with anxiety among students such as gender, compared to female students, male students (aOR= 0.71, 95% CI: 0.41-1.22, p=0.212), marital status, compared to divorced students, married students (aOR= 2.43, 95% CI: 0.57-10.38, p= 0.232), Religion, compared to other, Christianity (aOR= 1.40, 95% CI: 0.80-24.42, p=0.817) and Islam (aOR= 10.34, 95% CI: 0.29-371.97, p=0.201), year of study, compared to 3rd year students, 4th year students (aOR= 0.57, 95% CI:0.28-1.13, p=0.106) and residence, compared to students living at a boarding house, students living at home (aOR= 0.76, 95% CI:0.36-1.15, p=0.435).

Accounting for other factors associated with stress among students such as, gender, marital status, Religion, year of study and residence, the following was noted respectively, compared to female students, male students (aOR= 0.33, 95% CI: 0.19-0.57, p<0.001), compared to divorced students, married students (aOR= 0.81, 95% CI:0.16-4.06, p=0.797), compared to other, Christianity (aOR= 0.23, 95% CI: 0.122-3.90, p= 0.301) and Islam (aOR= 0.379, 95% CI: 0.17-8.59, p= 0.542) , compared to 3rd year students, 4th year students (aOR= 0.64, 95% CI:0.34-1.21, p=0.171), compared to students living at a boarding house, students living at home (aOR= 0.50, 95% CI:0.24-1.06, p=0.071)

CHAPTER FIVE: DISCUSSION OF RESULTS

This study set out to explore the prevalence and determinants of depression, anxiety and stress among pre-clinical medical students at the Lusaka Apex Medical University. Depression, anxiety and stress are often under-recognized and under-treated among medical students and students tend to feel that building resilience is part of being a doctor and that stress should be endured as part of their education (Sarkar, Gupta and Menon, 2017). Second to this, the stigma surrounding mental health problems often discourages medical students from seeking professional help (Menon, Sarkar and Kumar, 2015). In this study, we found that from the total number of students that participated in the study, the prevalence of depression, anxiety and stress were 66.10%, 74.86% and 45.35%, respectively. The mean age for this study was 23(22-24) IQR. These findings are synonymous to a study done on the determinants of stress, anxiety and depression among university students in Sfax universities of Tunisia where the prevalence of depression, anxiety and stress were 69.2%, 75.4% and 45.5%, respectively with participants of mean age of 22.2 ± 2.5 years (Ketata et al., 2021).

Any kind of mental illness can have adverse effects on cognitive development and learning and can present very high costs to individuals and the society, including dropping out of medical school, Suicide, Relationship deterioration, Marital problems and declining ability to work effectively (Mohamad et al., 2021). This study shows severe or extremely severe depression, anxiety and stress among students being evidently substantial. A cross sectional study that was done in Jazan University concluded that students suffered from depression (54%), anxiety (66%) and stress (34%) respectively (Al Bahhawi, 2018), while a web-based survey in Hong Kong reported the prevalence of depression, anxiety and stress in the students were 21%, 41% and 27%, respectively (Wong et al., 2006). The findings in this study are consistent with the other studies, however, minor difference in the findings can be attributed to methodological and cultural differences. Medical students understanding psychological burdens such as depression, anxiety and stress and their correlations can enable appropriate screening and intervention programs to prevent mental health problems which is crucial for their academic performance and future career development success, as well as for the country, as today's youth are tomorrow's leaders (Shamsuddin, 2013).

Anxiety can cause interpersonal destructive behavior, and anxiety disorders tend to precede the development of comorbid depression (Starr, 2014). The prevalence of anxiety in this study is markedly high and is analogous to a study done by Al Bahhawi et al. (2017) in which there was a markedly high prevalence of moderate to extremely severe anxiety among the students. According to a study done on the prevalence risk of anxiety and its associated factors among university students in Malaysia, “financial support for the study, alcohol consumption, poor sleep quality, body mass index (BMI), having a good friend in the university, having doubt regarding the future, being actively involved in the society and having problems with other students and lecturer(s) are significantly associated with the risk of anxiety (Mohamad et al., 2021).

The development of anxiety, depression, and stress in medical students may be multifactorial with factors such as the inability to accommodate a broad curriculum, examination, high expectations of parents, teachers and patients and time pressure to pursue other interests being possible contributors (Sarkar, Gupta and Menon, 2017). In this cross-sectional study, certain determinants such as age, gender, marital status, religion, year of study and residence were correlated with the prevalence of depression, anxiety and stress amongst the medical students. The bivariate analysis shows that being in 4th year was statistically associated with high levels of anxiety while being single or living at a boarding house were associated with a higher score of stress.

The multivariate logistic regression analysis shows that depression, Anxiety and stress were significantly more frequent among female students. According to studies done by Mohamad et. Al., (2021), Bangasser et. Al., (2010) and Drybye, Thomas and Shanafelt (2006), females are reported to have higher levels of depression, anxiety and stress which can be attributable to biopsychosocial factors such as social roles and physiological status. In this study, odds of having anxiety, depression and stress while being male are reduced by 71%, 69% and 33%, respectively, compared to being female, assuming the variable gender is held constant. This study shows that there was a significance in the males being less likely to be stressed than their female counterparts, however, there was no significant gender difference for depression and anxiety.

The marital status results show a higher prevalence of symptoms of depression and anxiety and a lower prevalence of symptoms of stress in married students compared to divorced students. Analysis in this study shows that the odds of having anxiety and depression increases by 143% and 82% respectively and the odds of having stress reduces by 81% in married student compared

to being divorced, if the variable marital status is held constant. There were no significant marital status differences for depression, anxiety and stress which like other studies did not find a correlation between marriage satisfaction and depression (Thabet, 2009).

From a mental health perspective, religions provide much-needed guidelines to help individuals find their way in life and believers can tolerate life's stresses and uncertainties more easily, however, outdated rituals and belief systems stunt positive growth and can lead to mental illness (Behere et al., 2013). The prevalence of symptoms of depression, anxiety and stress in this study was seen to be lower in Christianity and Islam as compared to other religions. The odds of having anxiety in Christianity and Islam are increased by 40% and 934% respectively and are reduced by 23% and 37.9% respectively in stress, whereas the odds of having depression in Christianity are reduced by 38% as compared to other religions, given the variable religion remains constant. This study showed no significant differences for depression anxiety and stress in terms of religion. Religiousness remains an important aspect of human life and it usually has a positive association with good mental health (Behere et al., 2013).

Analysis of the year of study shows the prevalence of depression, anxiety and stress being lower in students in their fourth year compared to students in their 3rd year of study. The odds of having anxiety, depression and stress while in 4th year are reduced by 57%, 84% and 64% respectively, provided the variable year of study is kept constant. Studies done by other researchers show that among students, the juniors had higher reactions to stress than the seniors probably due to the difficulty in adjusting to new environment (Aysan, Thompson and Hamarat, 2001). The year of study showed no significant differences for depression, anxiety and stress in this study.

Students who reside at home were seen to have a lower prevalence of depression anxiety and stress as compared to students who reside at a boarding house. The odds of experiencing depression, anxiety and stress while staying at home are reduced by 61%, 76% and 50% respectively, assuming the variable residence stays constant. Students who lived in rented accommodations and poor-quality housing were more likely affected with regard to psychological well-being. There were no significant residence differences for depression, anxiety and stress in this study.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

This cross-sectional study highlights the prevalence and determinants of depression anxiety and stress among medical students. A considerable prevalence of symptoms of severe or extremely severe depression, anxiety and stress was found in the study population. The determinants analyzed in this study were age, gender, marital status, religion, year of study and residence and none showed significance except for the males being less likely to be stressed than their female counterparts. This study proves that efforts aimed at identification and evaluation of students at risk, administering appropriate interventions and follow-up of affected students are vital. It is imperative that awareness about manifestations of distress among medical students needs to be increased among not only students themselves, but also other stakeholders such as medical educationists and parents.

6.2. Recommendation

The Government and University managements should work together to develop informed strategies and policies to promote mental health and prevent occurrences of mental disorders in higher educational institutions in Zambia.

6.3. Areas for further research

Based on the findings of this study, it is recommended that further research should be done to assess the determinants of depression, anxiety and stress among students at the Lusaka Apex Medical University and also to provide awareness as well as on-going care and support to medical students living with anxiety, stress and depression at Lusaka Apex Medical University.

6.4. Limitations

Given the cross-sectional nature of the study, the results were limited, highlighting the need for further research. Reliance on self-reported symptoms from participants may also have influenced the results. Furthermore, the use of a single college may lead to regional differences in depression at other colleges and universities.

REFERENCES

- Adom, D., Essel, H. and Chukwuere, J., 2020. The State of Academic Stress in the Higher Institutions of Ghana: The Way Forward. *Universal Journal of Educational Research*, 8(2), pp.321-331.
- Agnafors, S., Barmark, M. and Sydsjö, G., 2020. Mental health and academic performance: a study on selection and causation effects from childhood to early adulthood. *Social Psychiatry and Psychiatric Epidemiology*, 56(5), pp.857-866.
- Ahuja, K., Dhillon, M., Juneja, A. and Sharma, B., 2017. Breaking barriers: An education and contact intervention to reduce mental illness stigma among Indian college students. *Psychosocial Intervention*, 26(2), pp.103-109.
- Al Bahhawi, T., Albasheer, O.B., Makeen, A.M., Arishi, A.M., Hakami, O.M., Maashi, S.M., Al-Khairat, H.K., Alganmy, O.M., Sahal, Y.A., Sharif, A.A. and Mahfouz, M.S., 2018. Depression, anxiety, and stress and their association with khat use: a cross-sectional study among Jazan University students, Saudi Arabia. *Neuropsychiatric Disease and Treatment*, 14, p.2755.
- Al Omari, O., Al Sabei, S., Al Rawajfah, O., Abu Sharour, L., Aljohani, K., Alomari, K., Shkman, L., Al Dameery, K., Saifan, A., Al Zubidi, B., Anwar, S. and Alhalaiqa, F., 2020. Prevalence and Predictors of Depression, Anxiety, and Stress among Youth at the Time of COVID-19: An Online Cross-Sectional Multicountry Study. *Depression Research and Treatment*, 2020, pp.1-9.
- Aldiabat, K., Matani, N. and Le Navenec, C., 2014. Mental Health among Undergraduate University Students: A Background Paper for Administrators, Educators and Healthcare Providers. *Universal Journal of Public Health*, [online] 2(8), pp.209-214. Available at: <<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.940.1925&rep=rep1&type=pdf>> [Accessed 24 October 2021].

- Antony, M., Bieling, P., Cox, B., Enns, M. and Swinson, R., 1998. Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment*, 10(2), pp.176-181.
- Asher BlackDeer, A., Patterson Silver Wolf, D., Maguin, E. and Beeler-Stinn, S., 2021. Depression and anxiety among college students: Understanding the impact on grade average and differences in gender and ethnicity. *Journal of American College Health*, pp.1-12.
- Auerbach, R., Alonso, J., Axinn, W., Cuijpers, P., Ebert, D., Green, J., Hwang, I., Kessler, R., Liu, H., Mortier, P., Nock, M., Pinder-Amaker, S., Sampson, N., Aguilar-Gaxiola, S., Al-Hamzawi, A., Andrade, L., Benjet, C., Caldas-de-Almeida, J., Demyttenaere, K., Florescu, S., de Girolamo, G., Gureje, O., Haro, J., Karam, E., Kiejna, A., Kovess-Masfety, V., Lee, S., McGrath, J., O'Neill, S., Pennell, B., Scott, K., ten Have, M., Torres, Y., Zaslavsky, A., Zarkov, Z. and Bruffaerts, R., 2017. Mental disorders among college students in the World Health Organization World Mental Health Surveys – CORRIGENDUM. *Psychological Medicine*, [online] 47(15), pp.2737-2737. Available at: <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5129654/>>.
- Auttama, N., Seangpraw, K., Ong-Artborirak, P. and Tonchoy, P., 2021. Factors Associated with Self-Esteem, Resilience, Mental Health, and Psychological Self-Care Among University Students in Northern Thailand. *Journal of Multidisciplinary Healthcare*, Volume 14, pp.1213-1221.
- Aysan, F., Thompson, D. and Hamarat, E., 2001. Test anxiety, coping strategies, and perceived health in a group of high school students: A Turkish sample. *The Journal of genetic psychology*, 162(4), pp.402-411.
- Bangasser, D.A., Curtis, A., Reyes, B.A., Bethea, T.T., Parastatidis, I., Ischiropoulos, H., Van Bockstaele, E.J. and Valentino, R.J., 2010. Sex differences in corticotropin-releasing factor receptor signaling and trafficking: potential role in female vulnerability to stress-related psychopathology. *Molecular psychiatry*, 15(9), pp.896-904.
- Beck, A., Steer, R. and Carbin, M., 1988. Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review*, 8(1), pp.77-100.

- Becker, S., Dvorsky, M., Holdaway, A. and Luebke, A., 2018. Sleep problems and suicidal behaviors in college students. *Journal of Psychiatric Research*, [online] 99, pp.122-128. Available at: <https://neuro.unboundmedicine.com/medline/citation/29448236/Sleep_problems_and_suicidal_behaviors_in_college_students_>.
- Behere, P.B., Das, A., Yadav, R. and Behere, A.P., 2013. Religion and mental health. *Indian journal of psychiatry*, 55(Suppl 2), p.S187.
- Borsboom, D., 2017. A network theory of mental disorders. *World Psychiatry*, 16(1), pp.5-13.
- Broglia, E., Millings, A. and Barkham, M., 2019. Counseling With Guided Use of a Mobile Well-Being App for Students Experiencing Anxiety or Depression: Clinical Outcomes of a Feasibility Trial Embedded in a Student Counseling Service. *JMIR mHealth and uHealth*, [online] 7(8), p.e14318. Available at: <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6714497/>> [Accessed 5 October 2021].
- Brown, P., 2016. *The invisible problem? Improving students' mental health*. HEPI Report 88. [online] england: higher education policy institute. Available at: <<https://www.hepi.ac.uk/wp-content/uploads/2016/09/STRICTLY-EMBARGOED-UNTIL-22-SEPT-Hepi-Report-88-FINAL-1.pdf>> [Accessed 3 October 2021].
- Chabili, E. and Simuyemba, M.C. (2020). Prevalence of Stress and Coping Strategies among Undergraduate Medical Students at Ridgeway Campus of The University of Zambia. *Medical Journal of Zambia*, 47(4), pp.313–318.
- Chandrashekar, P., 2018. Do mental health mobile apps work: evidence and recommendations for designing high-efficacy mental health mobile apps. *mHealth*, 4, pp.6-6.
- Chung, W. and Hudziak, J., 2017. The Transitional Age Brain. *Child and Adolescent Psychiatric Clinics of North America*, [online] 26(2), pp.157-175. Available at: <[https://www.childpsych.theclinics.com/article/S1056-4993\(19\)30029-X/fulltext](https://www.childpsych.theclinics.com/article/S1056-4993(19)30029-X/fulltext)>.

- Cohen, S., 1994. PERCEIVED STRESS SCALE. [online] Mindgarden.com. Available at: <<https://www.mindgarden.com/documents/PerceivedStressScale>> [Accessed 12 March 2022].
- Cole-Lewis, H. and Kershaw, T., 2010. Text Messaging as a Tool for Behavior Change in Disease Prevention and Management. *Epidemiologic Reviews*, [online] 32(1), pp.56-69. Available at: <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3082846/>> [Accessed 5 October 2021].
- Communications, N., 2021. *Stress*. [online] Nyu.edu. Available at: <<https://www.nyu.edu/life/safety-health-wellness/live-well-nyu/priority-areas/stress.html>> [Accessed 22 November 2021].
- Dawadi, S., Shrestha, S. and Giri, R., 2021. Mixed-Methods Research: A Discussion on its Types, Challenges, and Criticisms. *Journal of Practical Studies in Education*, 2(2), pp.25-36.
- Dessie, Y., Ebrahim, J. and Awoke, T., 2013. Mental distress among university students in Ethiopia: a cross sectional survey. *Pan African Medical Journal*, 15.
- DuBois-Maahs, J., 2022. What is Operant Conditioning? - Talkspace. [online] Talkspace. Available at: <<https://www.talkspace.com/blog/operant-conditioning-what-is/#:~:text=Operant%20conditioning%20is%20a%20theory,can%20have%20on%20future%20actions.>> [Accessed 12 March 2022].
- Dyrbye, L.N., Thomas, M.R. and Shanafelt, T.D., 2006. Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. *Academic medicine*, 81(4), pp.354-373.
- En.wikipedia.org. 2022. Beck Depression Inventory - Wikipedia. [online] Available at: <https://en.wikipedia.org/wiki/Beck_Depression_Inventory> [Accessed 12 March 2022].
- En.wikipedia.org. 2022. Quasi-experiment - Wikipedia. [online] Available at: <<https://en.wikipedia.org/wiki/Quasi-experiment>> [Accessed 5 May 2022].

- Executive Board, 139. (2016). Health: use of mobile wireless technologies for public health. World Health Organization. <https://apps.who.int/iris/handle/10665/250808>
- Faydi, E., Funk, M., Kleintjes, S., Ofori-Atta, A., Ssbunnya, J., Mwanza, J., Kim, C. and Flisher, A., 2011. An assessment of mental health policy in Ghana, South Africa, Uganda and Zambia. *Health Research Policy and Systems*, [online] 9(1). Available at: <<https://health-policy-systems.biomedcentral.com/articles/10.1186/1478-4505-9-17>> [Accessed 3 October 2021].
- Fox, S. and DUGGAN, M., 2021. *Mobile Health 2012*. [online] Pew Research Center: Internet, Science & Tech. Available at: <<https://www.pewresearch.org/internet/2012/11/08/mobile-health-2012/>> [Accessed 5 October 2021].
- Free, C., Phillips, G., Felix, L., Galli, L., Patel, V. and Edwards, P., 2010. The effectiveness of M-health technologies for improving health and health services: a systematic review protocol. *BMC Research Notes*, [online] 3(1). Available at: <<https://bmcresearchnotes.biomedcentral.com/articles/10.1186/1756-0500-3-250#citeas>> [Accessed 5 October 2021].
- Grist, R., Porter, J. and Stallard, P., 2017. Mental Health Mobile Apps for Preadolescents and Adolescents: A Systematic Review. *Journal of Medical Internet Research*, [online] 19(5), p.e176. Available at: <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5465380/>> [Accessed 5 October 2021].
- Heckman, W., 2019. *Anxiety in College Students: Causes, Statistics & How Universities Can Help - The American Institute of Stress*. [online] The American Institute of Stress. Available at: <<https://www.stress.org/anxiety-in-college-students-causes-statistics-how-universities-can-help>> [Accessed 22 November 2021].
- <https://www.apa.org>. 2021. *Anxiety*. [online] Available at: <<https://www.apa.org/topics/anxiety>> [Accessed 22 November 2021].
- Hyland, M., Johnson, L., Kerrigan, M., Maguire, J., O'connor, C., O'hehir, M. and Daly, M., 2012. Mental Health Assessment Tools. [online] Available at:

<<https://www.drugsandalcohol.ie/17625/1/MentalHealthAssessmentTools>> [Accessed 12 March 2022].

International Journal of Nursing Education, 2020. Level of Holistic Health & Wellness and its Percieved Influencing Factors among Baccalaureate Nursing Students: A Mixed Approach.

Jones, P. and Robinaugh, D., 2021. An Answer to “So What?” Implications of Network Theory for Research and Practice. *FOCUS*, 19(2), pp.204-210.

Jörns-Presentati, A., Napp, A., Dessauvagie, A., Stein, D., Jonker, D., Breet, E., Charles, W., Swart, R., Lahti, M., Suliman, S., Jansen, R., van den Heuvel, L., Seedat, S. and Groen, G., 2021. The prevalence of mental health problems in sub-Saharan adolescents: A systematic review. *PLOS ONE*, 16(5), p.e0251689.

Kajitani, K., Higashijima, I., Kaneko, K., Matsushita, T., Fukumori, H. and Kim, D., 2020. Short-term effect of a smartphone application on the mental health of university students: A pilot study using a user-centered design self-monitoring application for mental health. *PLOS ONE*, [online] 15(9), p.e0239592. Available at: <<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0239592>> [Accessed 5 October 2021].

Kapungwe, A., Cooper, S., Mayeya, J., Mwanza, J., Mwape, L., Sikwese, A. and Lund, C., 2011. Attitudes of primary health care providers towards people with mental illness: evidence from two districts in Zambia. *African Journal of Psychiatry*, [online] 14(4). Available at: <<https://www.ajol.info/index.php/ajpsy/article/view/57913>>.

Kern, A., Hong, V., Song, J., Lipson, S. and Eisenberg, D., 2018. Mental health apps in a college setting: openness, usage, and attitudes. *mHealth*, 4, pp.20-20.

Ketata, N., Ben Ayed, H., Maamri, H., Yaich, S., Baklouti, M., Feki, H. and Damak, J., 2021. What are the determinants of stress, anxiety and depression among university students?. *European Journal of Public Health*, 31(Supplement_3), pp.ckab165-591.

Lattie, E., Adkins, E., Winkquist, N., Stiles-Shields, C., Wafford, Q. and Graham, A., 2019. Digital Mental Health Interventions for Depression, Anxiety, and Enhancement of Psychological

- Well-Being Among College Students: Systematic Review. *Journal of Medical Internet Research*, [online] 21(7), p.e12869. Available at: <<https://www.jmir.org/2019/7/e12869/>>.
- Lattie, E., Cohen, K., Winquist, N. and Mohr, D., 2020. Examining an App-Based Mental Health Self-Care Program, IntelliCare for College Students: Single-Arm Pilot Study. *JMIR Mental Health*, [online] 7(10), p.e21075. Available at: <<https://mental.jmir.org/2020/10/e21075/#ref3>> [Accessed 3 October 2021].
- Learning Center. 2021. *College Stress – Learning Center*. [online] Available at: <<https://learningcenter.unc.edu/tips-and-tools/managing-college-stress/>> [Accessed 22 November 2021].
- LeBlanc, N. and Marques, L., 2019. *Anxiety in college: What we know and how to cope - Harvard Health*. [online] Harvard Health. Available at: <<https://www.health.harvard.edu/blog/anxiety-in-college-what-we-know-and-how-to-cope-2019052816729>> [Accessed 1 November 2021].
- Lee, R. and Jung, M., 2018. Evaluation of an mHealth App (DeStressify) on University Students' Mental Health: Pilot Trial. *JMIR Mental Health*, [online] 5(1), p.e2. Available at: <<https://pubmed.ncbi.nlm.nih.gov/29362209/>> [Accessed 3 October 2021].
- Lew, B., Huen, J., Yu, P., Yuan, L., Wang, D., Ping, F., Abu Talib, M., Lester, D. and Jia, C., 2019. Associations between depression, anxiety, stress, hopelessness, subjective well-being, coping styles and suicide in Chinese university students. *PLOS ONE*, [online] 14(7), p.e0217372. Available at: <<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0217372>> [Accessed 3 October 2021].
- Li, W., Zhao, Z., Chen, D., Peng, Y. and Lu, Z. (2022). Prevalence and associated factors of depression and anxiety symptoms among college students: a systematic review and meta-analysis. *Journal of Child Psychology and Psychiatry*.

- Lovibond, P.F. and Lovibond, S.H. (1995). The structures of negative emotional states. (ONLINE). Available from: <https://openpsychometrics.org/test/DASS/> [Accessed 12th March, 2022].
- Macaskill, A., 2013. The mental health of university students in the United Kingdom. *British Journal of Guidance & Counselling*, 41(4), pp.426-441.
- Mayeya, J., Chazulwa, R., Mayeya, P., Mbewe, E., Magolo, L., Kasisi, F. and Bowa, A., 2004. Zambia mental health country profile. *International Review of Psychiatry*, 16(1-2), pp.63-72.
- Mayo Clinic. 2022. Mental illness - Symptoms and causes. [online] Available at: <<https://www.mayoclinic.org/diseases-conditions/mental-illness/symptoms-causes/syc-20374968>> [Accessed 5 May 2022].
- McCombes., S., 2022. How to do a case study. [online] Scribbr. Available at: <<https://www.scribbr.com/methodology/case-study/#:~:text=A%20case%20study%20is%20a,%2C%20clinical%2C%20and%20business%20research.>> [Accessed 5 May 2022].
- Mcleod, S., 2019. Cognitive Behavioral Therapy - CBT. [online] Simplypsychology.org. Available at: <<https://www.simplypsychology.org/cognitive-therapy.html#:~:text=CBT%20is%20based%20on%20the,distress%20and%20result%20in%20problems.>> [Accessed 12 March 2022].
- Menon, V., Sarkar, S. and Kumar, S., 2015. Barriers to healthcare seeking among medical students: a cross sectional study from South India. *Postgraduate medical journal*, 91(1079), pp.477-482.
- Miller, K., 2022. What are Mental Health Theories? (Incl. List). [online] PositivePsychology.com. Available at: <<https://positivepsychology.com/mental-health-theories/>> [Accessed 8 March 2022].
- Mohamad, N., Sidik, S., Akhtari-Zavare, M. and Gani, N., 2021. The prevalence risk of anxiety and its associated factors among university students in Malaysia: a national cross-sectional

- study. *BMC Public Health*, [online] 21(1). Available at: <<https://bmcpublikealth.biomedcentral.com/articles/10.1186/s12889-021-10440-5#citeas>> [Accessed 22 November 2021].
- Mohamad, N.E., Sidik, S.M., Akhtari-Zavare, M. and Gani, N.A., 2021. The prevalence risk of anxiety and its associated factors among university students in Malaysia: a national cross-sectional study. *BMC public health*, 21(1), pp.1-12.
- Munakampe, M., 2020. Strengthening mental health systems in Zambia. *International Journal of Mental Health Systems*, 14(1).
- Mwambwa-Johnson, E., 2021. Mental Health Literacy Among Rural and Urban Young Adults in Zambia. Phd. Walden University.
- Patel, V., 2007. Mental health in low- and middle-income countries. *British Medical Bulletin*, 81-82(1), pp.81-96.
- Pierceall, E. and Keim, M., 2007. Stress and Coping Strategies Among Community College Students. *Community College Journal of Research and Practice*, 31(9), pp.703-712.
- Ramón-Arbués, E., Gea-Caballero, V., Granada-López, J., Juárez-Vela, R., Pellicer-García, B. and Antón-Solanas, I., 2020. The Prevalence of Depression, Anxiety and Stress and Their Associated Factors in College Students. *International Journal of Environmental Research and Public Health*, 17(19), p.7001.
- Ramón-Arbués, E., Gea-Caballero, V., Granada-López, J.M., Juárez-Vela, R., Pellicer-García, B. and Antón-Solanas, I., 2020. The prevalence of depression, anxiety and stress and their associated factors in college students. *International Journal of Environmental Research and Public Health*, 17(19), p.7001.

- Rathbone, A. and Prescott, J., 2017. The Use of Mobile Apps and SMS Messaging as Physical and Mental Health Interventions: Systematic Review. *Journal of Medical Internet Research*, [online] 19(8), p.e295. Available at: <<https://www.jmir.org/2017/8/e295/>> [Accessed 5
- Sachdeva, S., 2018. Assessment of depression, anxiety, and stress among medical students enrolled in a medical college of New Delhi, India. Taneja N, Sachdeva S, Dwivedi N. Assessment of depression, anxiety, and stress among medical students enrolled in a medical college of New Delhi, India. *Indian J Soc Psychiatry*, 34, pp.157-62.
- Salari, N., Hosseini-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S. and Khaledi-Paveh, B., 2020. Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Globalization and Health*, 16(1). October 2021].
- Sarkar, S., Gupta, R. and Menon, V., 2017. A systematic review of depression, anxiety, and stress among medical students in India. *Journal of Mental Health and Human Behaviour*, 22(2), p.88.
- Schmidt, N. A., & Brown, J. M., 2019. Evidenced-based practice for nurses: Appraisal and application of research, 4th edition, Jones and Bartlett, Burlington, MA
- Scott, E., 2020. *How Is Stress Affecting My Health?* [online] Very well Mind. Available at: <<https://www.verywellmind.com/stress-and-health-3145086>> [Accessed 22 November 2021].
- Shamsuddin, K., Fadzil, F., Ismail, W.S.W., Shah, S.A., Omar, K., Muhammad, N.A., Jaffar, A., Ismail, A. and Mahadevan, R., 2013. Correlates of depression, anxiety and stress among Malaysian university students. *Asian journal of psychiatry*, 6(4), pp.318-323.
- Son, C., Hegde, S., Smith, A., Wang, X. and Sasangohar, F., 2020. Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. *Journal of Medical Internet Research*, 22(9), p.e21279.
- Sprc.org. 2022. Consequences of Student Mental Health Issues | Suicide Prevention Resource Center. [online] Available at: <<https://www.sprc.org/colleges-universities/consequences>> [Accessed 23 March 2022].

- Starr, L.R., Hammen, C., Connolly, N.P. and Brennan, P.A., 2014. Does relational dysfunction mediate the association between anxiety disorders and later depression? Testing an interpersonal model of comorbidity. *Depression and anxiety*, 31(1), pp.77-86.
- Swahn, M., Ali, B., Palmier, J., Tumwesigye, N., Sikazwe, G., Twa-Twa, J. and Rogers, K., 2011. Early alcohol use and problem drinking among students in Zambia and Uganda. *Journal of Public Health in Africa*, [online] 2(2), p.20. Available at: <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5345493/>> [Accessed 3 October 2021]. (Teens and College Students | Anxiety and Depression Association of America, ADAA, 2021)
- Team, S., 2022. Statistics about depression in the U.S. [online] The Checkup. Available at: <<https://www.singlecare.com/blog/news/depression-statistics/>> [Accessed 23 March 2022].
- Thabet, A.A., Ibraheem, A.N., Shivram, R., Winter, E.A. and Vostanis, P., 2009. Parenting support and PTSD in children of a war zone. *International Journal of Social Psychiatry*, 55(3), pp.226-237.
- The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation, 2018. Feasibility.
- WebMD. 2022. Causes of Mental Illness. [online] Available at: <<https://www.webmd.com/mental-health/mental-health-causes-mental-illness>> [Accessed 6 May 2022].
- Wiljer, D., Shi, J., Lo, B., Sanches, M., Hollenberg, E., Johnson, A., Abi-Jaoudé, A., Chaim, G., Cleverley, K., Henderson, J., Isaranuwatthai, W., Levinson, A., Robb, J., Wong, H. and Voineskos, A., 2020. Effects of a Mobile and Web App (Thought Spot) on Mental Health Help-Seeking Among College and University Students: Randomized Controlled Trial. *Journal of Medical Internet Research*, 22(10), p.e20790.
- Wong, J.G., Cheung, E.P., Chan, K.K., Ma, K.K. and Wa Tang, S., 2006. Web-based survey of depression, anxiety and stress in first-year tertiary education students in Hong Kong. *Australian & New Zealand Journal of Psychiatry*, 40(9), pp.777-782.

World Health Organization, 2018. Mental health: strengthening our response.

Zhang, L., Zhao, S., Lin, Q., Song, M., Wu, S. and Zheng, H., 2021. Algorithms to Predict Anxiety and Depression Among University Students in China After Analyzing Lifestyles and Sport Habits. *Neuropsychiatric Disease and Treatment*, [online] Volume 17, pp.2011-2025. Available at: <<https://www.dovepress.com/algorithms-to-predict-anxiety-and-depression-among-university-students-peer-reviewed-fulltext-article-NDT>> [Accessed 3 October 2021].

APPENDIX 1: Consent and Demographic information

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-03-22 16:23	Yes	Participant 1	31	FEMALE	4TH YEAR	Zambezi,Roma	christian	MARRIED	HOME
08-03-22 16:58	Yes	Participant 2	22	MALE	3RD YEAR	Zambezi,Roma	Christian	SINGLE	BOARDING HOUSE
08-03-22 16:59	Yes	Participant 3	21	FEMALE	4TH YEAR	Red roof inn Roma	Christianity	SINGLE	BOARDING HOUSE
08-03-22 16:59	Yes	Participant 4	23	FEMALE	3RD YEAR	Chilanga	Christianity	SINGLE	BOARDING HOUSE
08-03-22 17:00	Yes	Participant 5	22	FEMALE	3RD YEAR	Chililabombwe, Copperbelt, Zambia.	Christianity	SINGLE	BOARDING HOUSE
08-03-22 17:03	Yes	Participant 6	22	FEMALE	3RD YEAR	37/93 kanyama west	Christian	SINGLE	BOARDING HOUSE
08-03-22 17:08	Yes	Participant 7	35	MALE	3RD YEAR	Lusaka west	Christianity	MARRIED	HOME
08-03-22 17:09	Yes	Participant 8	23	MALE	3RD YEAR	Chalala	Christianity	SINGLE	BOARDING HOUSE
08-03-22 17:12	Yes	Participant 9	22	FEMALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-03-22 17:14	Yes	Participant 10	21	FEMALE	3RD YEAR	Kafue east extension	Christianity	SINGLE	BOARDING HOUSE
08-03-22 17:14	Yes	Participant 11	24	MALE	4TH YEAR	Mongu, western.	Christian	SINGLE	HOME
08-03-22 17:16	Yes	Participant 12	25	FEMALE	4TH YEAR	Civic centre Court yard 8D nsunzu road	Christianity	SINGLE	BOARDING HOUSE
08-03-22 17:20	Yes	Participant 13	21	FEMALE	3RD YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-03-22 17:21	Yes	Participant 14	22	FEMALE	3RD YEAR	Lusaka ,Avondale	Christian	SINGLE	BOARDING HOUSE
08-03-22 17:32	Yes	Participant 15	23	MALE	3RD YEAR	Matero, Lusaka	Neither Christian nor Muslim	SINGLE	BOARDING HOUSE
08-03-22 17:35	Yes	Participant 16	20	MALE	3RD YEAR	MAKENI EAST CHIPWENUPWENU ROAD HOUSE A92 LUSAKA	ISLAM	SINGLE	BOARDING HOUSE
08-03-22 17:39	Yes	Participant 17	29	MALE	3RD YEAR	HN 40 MUTANDWA ROAD	Christianity	SINGLE	BOARDING HOUSE
08-03-22 17:42	Yes	Participant 18	25	MALE	4TH YEAR	10 mafuti Chilenje south, Lusaka.	Christian	SINGLE	HOME
08-03-22 17:47	Yes	Participant 19	22	MALE	3RD YEAR	NDOLA	CHRISTIAN	SINGLE	BOARDING HOUSE
08-03-22 17:50	Yes	Participant 20	23	MALE	3RD YEAR	292 bangweulu road luapula, mansa	Christian	SINGLE	BOARDING HOUSE
08-03-22 17:51	Yes	Participant 21	22	MALE	3RD YEAR	Off Augustine lungu road chalala	Christian	SINGLE	BOARDING HOUSE
08-03-22 17:51	Yes	Participant 22	23	FEMALE	3RD YEAR	Makeni	Christian	SINGLE	BOARDING HOUSE
08-03-22 18:01	Yes	Participant 23	20	FEMALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-03-22 18:04	Yes	Participant 24	26	MALE	4TH YEAR	Ngombe	Christianity	SINGLE	HOME
08-03-22 18:11	Yes	Participant 25	24	FEMALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-03-22 18:24	Yes	Participant 26	24	MALE	4TH YEAR	Manzini, Swaziland	Christianity	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-03-22 18:36	Yes	Participant 27	20	FEMALE	3RD YEAR	chelstone	spiritual (non religious)	SINGLE	BOARDING HOUSE
08-03-22 18:40	Yes	Participant 28	24	MALE	4TH YEAR	Woodlands	Agnostic	SINGLE	HOME
08-03-22 18:44	Yes	Participant 29	23	FEMALE	4TH YEAR	Mongu school continuing education.	Christian	SINGLE	BOARDING HOUSE
08-03-22 18:44	Yes	Participant 30	23	MALE	3RD YEAR	225 hombwe Mufulira	Christianity	SINGLE	BOARDING HOUSE
08-03-22 18:53	Yes	Participant 31	23	FEMALE	3RD YEAR	Kabwata site and service 524	Christianity	SINGLE	BOARDING HOUSE
08-03-22 19:18	Yes	Participant 32	21	FEMALE	3RD YEAR	Chalala Apex	Christianity	SINGLE	BOARDING HOUSE
08-03-22 19:28	Yes	Participant 33	26	FEMALE	4TH YEAR	Lusaka	Christian	SEPERATE D	HOME
08-03-22 19:30	Yes	Participant 34	22	FEMALE	3RD YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-03-22 20:07	Yes	Participant 35	26	FEMALE	3RD YEAR	Woodlands extension 7807	Christianity	SINGLE	HOME
08-03-22 20:31	Yes	Participant 36	21	FEMALE	3RD YEAR	Lusaka	Christianity	SINGLE	BOARDING HOUSE
08-03-22 20:34	Yes	Participant 37	21	FEMALE	4TH YEAR	Gibson Chigaga, PHI Lusaka	Christian	SINGLE	BOARDING HOUSE
08-03-22 20:57	Yes	Participant 38	23	MALE	4TH YEAR	Chipata eastern province	Christian	SINGLE	BOARDING HOUSE
08-03-22 21:34	Yes	Participant 39	21	MALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-03-22 23:10	Yes	Participant 40	24	FEMALE	4TH YEAR	Eenhana, Ohangwena Region	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-04-22 8:06	Yes	Participant 41	21	FEMALE	4TH YEAR	M640 Zanimuone west	Christian	SINGLE	BOARDING HOUSE
08-04-22 8:10	Yes	Participant 42	21	FEMALE	4TH YEAR	Lusaka , kamwala	Christianity	SINGLE	BOARDING HOUSE
08-04-22 10:28	Yes	Participant 43	21	MALE	4TH YEAR	Libala south, Lusaka, Zambia, 10101, ZW	Christian	SINGLE	BOARDING HOUSE
08-08-22 13:32	Yes	Participant 44	24	MALE	4TH YEAR	D34	Christian	SINGLE	BOARDING HOUSE
08-08-22 13:46	Yes	Participant 45	20	FEMALE	4TH YEAR	Luangwa extension kabwe central province	Christian	SINGLE	BOARDING HOUSE
08-08-22 14:02	Yes	Participant 46	30	MALE	3RD YEAR	Chilenje police station P.O box 4199	Christianity (seventh day adventists)	SINGLE	HOME
08-08-22 14:48	Yes	Participant 47	23	MALE	4TH YEAR	Roma	Christianity	SINGLE	BOARDING HOUSE
08-08-22 15:07	Yes	Participant 48	21	FEMALE	4TH YEAR	209 Jomo Mufulira	Christian	SINGLE	BOARDING HOUSE
08-08-22 15:07	Yes	Participant 49	23	FEMALE	4TH YEAR	9694 chudleigh off munali road	Christian	SINGLE	BOARDING HOUSE
08-08-22 15:08	Yes	Participant 50	22	FEMALE	4TH YEAR	Lusaka west	Christian	SINGLE	BOARDING HOUSE
08-08-22 15:08	Yes	Participant 51	23	FEMALE	4TH YEAR	586 Robertson Zulu road, Meanwood ibex	Christian	SINGLE	BOARDING HOUSE
08-08-22 15:09	Yes	Participant 52	23	FEMALE	4TH YEAR	Mazabuka.	Christianity	SINGLE	BOARDING HOUSE
08-08-22 15:09	Yes	Participant 53	24	MALE	4TH YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE
08-08-22 15:10	Yes	Participant 54	21	FEMALE	4TH YEAR	Ibex Lusaka	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-08-22 15:13	Yes	Participant 55	24	MALE	4TH YEAR	Solwezi	Christian	SINGLE	BOARDING HOUSE
08-08-22 15:22	Yes	Participant 56	21	FEMALE	4TH YEAR	Kamwala south	Christian	SINGLE	BOARDING HOUSE
08-08-22 15:24	Yes	Participant 57	21	FEMALE	4TH YEAR	Chibombo	Islam	SINGLE	BOARDING HOUSE
08-08-22 15:54	Yes	Participant 58	22	FEMALE	4TH YEAR	Plot L2338/M New Kasama Lusaka	Christian	SINGLE	HOME
08-08-22 16:05	Yes	Participant 59	24	FEMALE	4TH YEAR	Ibex Chongwe	Christian	SINGLE	BOARDING HOUSE
08-08-22 16:12	Yes	Participant 60	21	FEMALE	4TH YEAR	56561 New kasama, chalala area	Christianity	SINGLE	HOME
08-08-22 16:49	Yes	Participant 61	20	FEMALE	4TH YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE
08-08-22 17:18	Yes	Participant 62	35	MALE	4TH YEAR	Kabwe	Christianity	SINGLE	BOARDING HOUSE
08-08-22 17:25	Yes	Participant 63	23	FEMALE	4TH YEAR	Kabwata Estates, house #09-03 Kasonkomona Road	CHRISTIAN	SINGLE	HOME
08-08-22 17:57	Yes	Participant 64	23	MALE	4TH YEAR	Monze, Southern province	Christianity	SINGLE	BOARDING HOUSE
08-08-22 18:02	Yes	Participant 65	24	MALE	4TH YEAR	Kitwe	Christian	SINGLE	BOARDING HOUSE
08-08-22 18:17	Yes	Participant 66	23	MALE	4TH YEAR	Plot no 687/11 off mosque road,makeni, Lusaka zambia	Islam	SINGLE	HOME
08-08-22 18:21	Yes	Participant 67	22	FEMALE	4TH YEAR	Plot 5774 great east road kalundu	Islam	SINGLE	HOME

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-08-22 18:24	Yes	Participant 68	22	FEMALE	4TH YEAR	Kitwe	Christianity	SINGLE	BOARDING HOUSE
08-08-22 19:06	Yes	Participant 69	24	MALE	4TH YEAR	31 MKUSHI ROAD NEW KAMWALA LUSAKA	CHRISTIAN	SINGLE	BOARDING HOUSE
08-08-22 19:11	Yes	Participant 70	31	MALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-08-22 19:44	Yes	Participant 71	23	FEMALE	4TH YEAR	879 MN	Christianity	SINGLE	BOARDING HOUSE
08-08-22 20:04	Yes	Participant 72	23	FEMALE	3RD YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-08-22 20:04	Yes	Participant 73	24	MALE	3RD YEAR	woodland	Muslim	SINGLE	BOARDING HOUSE
08-08-22 20:08	Yes	Participant 74	22	MALE	3RD YEAR	5656 Augustine lungu chalala	Catholics	SINGLE	BOARDING HOUSE
08-08-22 20:11	Yes	Participant 75	26	FEMALE	3RD YEAR	Roma	Christianity	SINGLE	BOARDING HOUSE
08-08-22 20:14	Yes	Participant 76	33	MALE	3RD YEAR	Chalala	Christian	MARRIED	HOME
08-08-22 20:18	Yes	Participant 77	22	MALE	3RD YEAR	NDOLA	CHRISTIANITY	SINGLE	BOARDING HOUSE
08-08-22 20:58	Yes	Participant 78	22	FEMALE	3RD YEAR	Lusaka	Christianity	SINGLE	BOARDING HOUSE
08-08-22 21:56	Yes	Participant 79	23	MALE	4TH YEAR	Mongu	Christian	SINGLE	BOARDING HOUSE
08-09-22 3:21	Yes	Participant 80	20	FEMALE	3RD YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE
08-09-22 3:48	Yes	Participant 81	23	FEMALE	4TH YEAR	Ndola	Christianity	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-09-22 7:20	Yes	Participant 82	30	FEMALE	3RD YEAR	22 luntembwe street, riverside kitwe	Christian	SINGLE	BOARDING HOUSE
08-09-22 13:30	Yes	Participant 83	32	MALE	4TH YEAR	Libala south	Christian	SINGLE	HOME
08-09-22 21:45	Yes	Participant 84	24	MALE	4TH YEAR	Libala South	Christianity	SINGLE	HOME
08-09-22 21:53	Yes	Participant 85	22	FEMALE	4TH YEAR	Luanshya	Jehovah's Witness	SINGLE	BOARDING HOUSE
08-10-22 7:28	Yes	Participant 86	26	FEMALE	4TH YEAR	Arakan barracks house no. 47	Christianity	SINGLE	BOARDING HOUSE
08-10-22 12:38	Yes	Participant 87	21	MALE	4TH YEAR	House # 31 Makeni buffalo village, lusaka	Christian	SINGLE	BOARDING HOUSE
08-10-22 12:40	Yes	Participant 88	22	MALE	4TH YEAR	Plot no 24830, Hillview Park, libala south.	Christian	SINGLE	HOME
08-10-22 12:41	Yes	Participant 89	22	MALE	4TH YEAR	Nsunzu road,civic center, Lusaka	Christian	SINGLE	BOARDING HOUSE
08-10-22 12:45	Yes	Participant 90	23	MALE	4TH YEAR	Chamber valley	Christan	SINGLE	BOARDING HOUSE
08-11-22 19:12	Yes	Participant 91	21	FEMALE	3RD YEAR	Mwinilunga	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:14	Yes	Participant 92	21	FEMALE	3RD YEAR	Lobamba, Swaziland	Christianity	SINGLE	BOARDING HOUSE
08-11-22 19:17	Yes	Participant 93	20	MALE	3RD YEAR	Lusaka, Zambia	Islam	SINGLE	HOME
08-11-22 19:18	Yes	Participant 94	21	FEMALE	3RD YEAR	225 A NAPSA COMPLEX NYUMBA YANGA	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:21	Yes	Participant 95	26	MALE	3RD YEAR	ZAF Twinpalm Base Hse. No. MC2-86B	Christianity	SINGLE	HOME

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-11-22 19:24	Yes	Participant 96	21	FEMALE	3RD YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:25	Yes	Participant 97	24	MALE	3RD YEAR	Matero, Lusaka	Islam	SINGLE	HOME
08-11-22 19:25	Yes	Participant 98	22	FEMALE	3RD YEAR	Kabwata 12/1	Christianity	SINGLE	BOARDING HOUSE
08-11-22 19:27	Yes	Participant 99	23	FEMALE	4TH YEAR	7054 Mpika street	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:28	Yes	Participant 100	23	FEMALE	4TH YEAR	Chalala, Lusaka	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:30	Yes	Participant 101	Prefer not to say	FEMALE	4TH YEAR	Lusaka avondale	Christian	SINGLE	HOME
08-11-22 19:31	Yes	Participant 102	23	FEMALE	4TH YEAR	1521masala, ndola	Christianity	SINGLE	BOARDING HOUSE
08-11-22 19:32	Yes	Participant 103	24	FEMALE	4TH YEAR	Chikankanta Mission	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:32	Yes	Participant 104	24	MALE	4TH YEAR	Luangwa	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:34	Yes	Participant 105	23	MALE	4TH YEAR	Hill View Chalala House#2901	Catholic	SINGLE	HOME
08-11-22 19:38	Yes	Participant 106	22	FEMALE	4TH YEAR	2215 levy mwanawasa road, pamodzi, Ndola	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:40	Yes	Participant 107	21	FEMALE	3RD YEAR	Ndola	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:42	Yes	Participant 108	21	FEMALE	4TH YEAR	7 Luvale street , Luanshya	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:42	Yes	Participant 109	22	FEMALE	4TH YEAR	14 Muombo Street, Nkana East. Kitwe	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-11-22 19:42	Yes	Participant 110	24	FEMALE	3RD YEAR	Ngombe	Christianity	SINGLE	BOARDING HOUSE
08-11-22 19:42	Yes	Participant 111	24	MALE	4TH YEAR	Ho 31 mkushi road kamwala	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:43	Yes	Participant 112	20	FEMALE	4TH YEAR	Number 37 Kasaho Road	Christianity	SINGLE	BOARDING HOUSE
08-11-22 19:43	Yes	Participant 113	21	FEMALE	3RD YEAR	Matero east	Islam	SINGLE	HOME
08-11-22 19:44	Yes	Participant 114	20	FEMALE	3RD YEAR	888B fir road lusaka	Christian	SINGLE	HOME
08-11-22 19:44	Yes	Participant 115	26	MALE	4TH YEAR	Nkana east ,Kitwe	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:46	Yes	Participant 116	30	FEMALE	4TH YEAR	27D1/13 Dr aggrey road kabwata estate	Christian	MARRIED	HOME
08-11-22 19:47	Yes	Participant 117	23	MALE	4TH YEAR	chalala	sda	SINGLE	BOARDING HOUSE
08-11-22 19:48	Yes	Participant 118	21	FEMALE	4TH YEAR	Kamwala south	Christianity	SINGLE	BOARDING HOUSE
08-11-22 19:48	Yes	Participant 119	25	FEMALE	4TH YEAR	Emmasdale lusaka	Islam	SINGLE	HOME
08-11-22 19:51	Yes	Participant 120	20	FEMALE	3RD YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:52	Yes	Participant 121	23	FEMALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-11-22 19:54	Yes	Participant 122	21	MALE	4TH YEAR	51 rockview	christian	SINGLE	HOME
08-11-22 19:54	Yes	Participant 123	22	FEMALE	4TH YEAR	Moth Extension, Chipata, Eastern Province, Zambia.	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-11-22 20:06	Yes	Participant 124	23	MALE	4TH YEAR	Garden Lusaka	Christian	SINGLE	BOARDING HOUSE
08-11-22 20:06	Yes	Participant 125	23	MALE	3RD YEAR	Kitwe	Christian	SINGLE	HOME
08-11-22 20:08	Yes	Participant 126	23	FEMALE	4TH YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE
08-11-22 20:08	Yes	Participant 127	21	MALE	3RD YEAR	POBox 1132 chongwe council	Christianity	SINGLE	BOARDING HOUSE
08-11-22 20:09	Yes	Participant 128	20	FEMALE	3RD YEAR	Lundazi	Christianity	SINGLE	BOARDING HOUSE
08-11-22 20:14	Yes	Participant 129	22	MALE	3RD YEAR	Luangwa	Christianity	SINGLE	BOARDING HOUSE
08-11-22 20:14	Yes	Participant 130	20	MALE	3RD YEAR	Ndola, Hillcrest	Christianity	SINGLE	BOARDING HOUSE
08-11-22 20:31	Yes	Participant 131	24	MALE	3RD YEAR	0132,chipulukusu road,Ndola	Christianity	SINGLE	BOARDING HOUSE
08-11-22 20:53	Yes	Participant 132	30	FEMALE	4TH YEAR	Lusaka	Christian	MARRIED	HOME
08-11-22 20:58	Yes	Participant 133	21	MALE	3RD YEAR	Chalala B7	Christian	SINGLE	BOARDING HOUSE
08-11-22 20:59	Yes	Participant 134	21	FEMALE	3RD YEAR	2852,Little Bombay,Chipata,Zambia	Christianity	SINGLE	BOARDING HOUSE
08-11-22 21:00	Yes	Participant 135	30	MALE	3RD YEAR	Makeni	Islaam	MARRIED	HOME
08-11-22 21:06	Yes	Participant 136	28	FEMALE	4TH YEAR	Liteta hospital compound	Christianity	SINGLE	BOARDING HOUSE
08-11-22 21:11	Yes	Participant 137	24	MALE	4TH YEAR	Nchanga North Chingola	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-11-22 21:21	Yes	Participant 138	24	MALE	4TH YEAR	PLOT 12687/M LIBALA SOUTH KASAMA ROAD	Christian	SINGLE	BOARDING HOUSE
08-11-22 21:41	Yes	Participant 139	26	MALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-11-22 21:52	Yes	Participant 140	25	MALE	3RD YEAR	Makeni East #43	Islam	SINGLE	BOARDING HOUSE
08-11-22 22:06	Yes	Participant 141	22	FEMALE	3RD YEAR	Libala South	Christianity	SINGLE	BOARDING HOUSE
08-11-22 22:16	Yes	Participant 142	24	FEMALE	4TH YEAR	Makeni East 2443/74	Christianity	SINGLE	HOME
08-11-22 22:17	Yes	Participant 143	28	MALE	4TH YEAR	Mutandwa	Christian	MARRIED	BOARDING HOUSE
08-11-22 22:42	Yes	Participant 144	36	MALE	3RD YEAR	21393 rock field, chalala	Christian	DIVORCED	HOME
08-11-22 23:28	Yes	Participant 145	20	FEMALE	3RD YEAR	Kalundu	Christian	SINGLE	BOARDING HOUSE
08-12-22 3:29	Yes	Participant 146	22	MALE	3RD YEAR	Lusaka woodlands	Christianity	SINGLE	BOARDING HOUSE
08-12-22 3:37	Yes	Participant 147	25	FEMALE	4TH YEAR	Meanwood phase 1, lusaka	Christian	SINGLE	HOME
08-12-22 4:24	Yes	Participant 148	28	FEMALE	3RD YEAR	507/3 Lusaka matero	Christian	WIDOWED	HOME
08-12-22 6:14	Yes	Participant 149	23	MALE	4TH YEAR	Plot no 687/11 off mosque road,makeni, Lusaka zambia	Islam	SINGLE	HOME
08-12-22 6:25	Yes	Participant 150	19	FEMALE	3RD YEAR	Kalundu	Christian	SINGLE	BOARDING HOUSE
08-12-22 7:24	Yes	Participant 151	22	FEMALE	3RD YEAR	26 Masonkola, Kamenza Township,	CHRISTIANITY	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
						Chililabombwe, Copperbelt Zambia			
08-12-22 7:42	Yes	Participant 152	23	MALE	3RD YEAR	Kasama	Christianity	SINGLE	BOARDING HOUSE
08-12-22 9:18	Yes	Participant 153	21	FEMALE	3RD YEAR	Mbabane, Kingdom of Eswatini	Christianity	SINGLE	BOARDING HOUSE
08-12-22 10:33	Yes	Participant 154	22	MALE	3RD YEAR	Roma Lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:29	Yes	Participant 155	23	MALE	4TH YEAR	Plot no 687/11 off mosque road,makeni, Lusaka zambia	Islam	SINGLE	HOME
08-12-22 11:29	Yes	Participant 156	22	FEMALE	4TH YEAR	Plot 5774 great east road kalundu	Islam	SINGLE	HOME
08-12-22 11:30	Yes	Participant 157	22	FEMALE	4TH YEAR	Farm #692 nn	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:30	Yes	Participant 158	23	FEMALE	4TH YEAR	Roma	CHRISTIAN	SINGLE	BOARDING HOUSE
08-12-22 11:30	Yes	Participant 159	22	FEMALE	4TH YEAR	14 Muombo Street, Nkana East. Kitwe	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:30	Yes	Participant 160	Prefer not to say	FEMALE	4TH YEAR	Avondale	Christian	SINGLE	HOME
08-12-22 11:30	Yes	Participant 161	21	FEMALE	4TH YEAR	Kohima barracks, Kabwe.	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:30	Yes	Participant 162	23	FEMALE	4TH YEAR	Foxdale	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:30	Yes	Participant 163	20	FEMALE	4TH YEAR	37 Kasaho Road, Roma	Christianity	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:31	Yes	Participant 164	21	FEMALE	4TH YEAR	56561 NEW KASAMA chalala area	Christianity	SINGLE	HOME
08-12-22 11:31	Yes	Participant 165	22	MALE	4TH YEAR	Plot no. 24830	Christian	SINGLE	HOME
08-12-22 11:31	Yes	Participant 166	24	MALE	4TH YEAR	31 mkushi road kamwala lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 167	24	MALE	4TH YEAR	167/65 ,makeni,lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 168	24	FEMALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 169	34	MALE	4TH YEAR	red Roof	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 170	23	MALE	4TH YEAR	Chamber valley	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 171	22	FEMALE	4TH YEAR	Plot L2338/M New Kasama	Christian	SINGLE	HOME
08-12-22 11:31	Yes	Participant 172	30	FEMALE	4TH YEAR	Kalingalinga lusaka	Christianity	MARRIED	HOME
08-12-22 11:31	Yes	Participant 173	22	FEMALE	4TH YEAR	76A Chiyanga Road, Northmead.	Islam	SINGLE	HOME
08-12-22 11:31	Yes	Participant 174	23	FEMALE	4TH YEAR	Kabwata Estates house# 09-03 kasonkomona road	CHRISTIAN	SINGLE	HOME
08-12-22 11:31	Yes	Participant 175	22	FEMALE	4TH YEAR	Luanshya	Christianity (Jehovah's Witness)	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 176	20	FEMALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:31	Yes	Participant 177	23	FEMALE	4TH YEAR	Mongu continuing education P.O. Box 910057, Mongu	Atheist	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 178	23	FEMALE	4TH YEAR	9684 chudleigh off munali road	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 179	24	MALE	4TH YEAR	Manzini Swaziland	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 180	23	MALE	4TH YEAR	Monze, southern province	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 181	21	MALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 182	21	FEMALE	4TH YEAR	No.5, Gibson Chigaga, PHI, Lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 183	27	FEMALE	4TH YEAR	Bonaventure makeni	Islam	SINGLE	BOARDING HOUSE
08-12-22 11:31	Yes	Participant 184	23	FEMALE	4TH YEAR	Chalala, Lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 185	26	MALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 186	35	MALE	4TH YEAR	Lusaka	Lusaka	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 187	39	FEMALE	4TH YEAR	Chelstone M15	SDA	MARRIED	HOME
08-12-22 11:32	Yes	Participant 188	23	FEMALE	4TH YEAR	Ndola	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 189	21	MALE	4TH YEAR	Plot 11, Paul Ngozi street, Kabwata Site and service	Islam	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:32	Yes	Participant 190	23	MALE	4TH YEAR	Zamcapital flats woodlands	Agnostic	SINGLE	HOME
08-12-22 11:32	Yes	Participant 191	26	FEMALE	4TH YEAR	Arakan barracks	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 192	24	MALE	4TH YEAR	Kabanana site and service	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 193	22	FEMALE	4TH YEAR	Kitwe	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 194	22	FEMALE	4TH YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 195	23	MALE	4TH YEAR	Emmasdale	Islam	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 196	21	FEMALE	4TH YEAR	Lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 197	22	MALE	4TH YEAR	Nsunzu road,civic center, Lusaka	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 198	23	MALE	4TH YEAR	101 jomo, mufulira	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 199	23	MALE	4TH YEAR	chalala	church of Christ	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 200	23	MALE	4TH YEAR	Kitwe ndeke village	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 201	27	FEMALE	4TH YEAR	Rhodespark	CHRISTIAN	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 202	25	FEMALE	4TH YEAR	Emmasdale Lusaka	Islam	SINGLE	HOME
08-12-22 11:32	Yes	Participant 203	24	MALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:32	Yes	Participant 204	23	FEMALE	4TH YEAR	Kabwata site and service	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:32	Yes	Participant 205	22	FEMALE	4TH YEAR	A5 Chunga Extension	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 206	22	FEMALE	4TH YEAR	Roma	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 207	25	FEMALE	4TH YEAR	Meanwood phase 1 Lusaka	Christian	SINGLE	HOME
08-12-22 11:33	Yes	Participant 208	23	MALE	4TH YEAR	Mongu	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 209	23	MALE	4TH YEAR	PHI	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 210	23	FEMALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 211	21	FEMALE	4TH YEAR	Matero	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 212	23	MALE	4TH YEAR	Ngombe	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 213	24	FEMALE	4TH YEAR	Chikankanta Mission	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 214	22 years old	FEMALE	4TH YEAR	43 luangwa street nchanga North chingola	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 215	28	MALE	4TH YEAR	Mutandwa	Christianity	MARRIED	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 216	31	MALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 217	21	FEMALE	4TH YEAR	22 kambili k north chingola	Christianity	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:33	Yes	Participant 218	21	FEMALE	4TH YEAR	Ibex Hill lusaka	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 219	21	MALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 220	23	FEMALE	4TH YEAR	Mazabuka	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 221	23	MALE	4TH YEAR	Not sure	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 222	23	FEMALE	4TH YEAR	1521masala ndola	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 223	24	MALE	4TH YEAR	Choma, southern province.	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 224	21	FEMALE	4TH YEAR	209 Jomo Mufulira	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 225	33	MALE	4TH YEAR	Zimba mission hospital	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 226	24	MALE	4TH YEAR	Nakonde	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:33	Yes	Participant 227	28	FEMALE	4TH YEAR	Chalala	Christian	SINGLE	HOME
08-12-22 11:33	Yes	Participant 228	24	MALE	4TH YEAR	Chalala, Hillview	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 229	26	MALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 230	23	FEMALE	4TH YEAR	879 MN	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 231	23	MALE	4TH YEAR	2 Itumbi Eastlea Mufulira Zambia	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:34	Yes	Participant 232	22	MALE	4TH YEAR	59/25 chudleigh street	Christian	SINGLE	HOME
08-12-22 11:34	Yes	Participant 233	25	MALE	4TH YEAR	Choma	Atheist	SINGLE	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 234	25	MALE	4TH YEAR	Ngombe	Muslim	MARRIED	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 235	24	MALE	4TH YEAR	Kabwe	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 236	25	MALE	4TH YEAR	Mongu	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 237	28	FEMALE	4TH YEAR	30506 chalala Rockfield	Christianity	MARRIED	HOME
08-12-22 11:34	Yes	Participant 238	24	MALE	4TH YEAR	Chingola	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:34	Yes	Participant 239	22	FEMALE	4TH YEAR	2215 Levy Mwanawasa road, pamodzi, Ndola	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 240	32	MALE	4TH YEAR	Libala	Christian	SINGLE	HOME
08-12-22 11:35	Yes	Participant 241	21	MALE	4TH YEAR	Makeni buffalo village house No 31	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 242	24	MALE	4TH YEAR	Ngombe	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 243	25	MALE	4TH YEAR	Namulundu, Kasama Northern	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 244	25	MALE	4TH YEAR	Foxdale	Christian	SINGLE	HOME
08-12-22 11:35	Yes	Participant 245	23	MALE	4TH YEAR	Chalala, Lusaka.	Christianity	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:35	Yes	Participant 246	23	FEMALE	4TH YEAR	Chongwe	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 247	22	MALE	4TH YEAR	A40	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 248	22	MALE	4TH YEAR	107/24	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 249	28	FEMALE	4TH YEAR	Makeni	Catholic	MARRIED	HOME
08-12-22 11:35	Yes	Participant 250	20	FEMALE	4TH YEAR	Luangwa Extension Kabwe	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 251	22	MALE	4TH YEAR	Neacroft farms Monze	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 252	30	FEMALE	4TH YEAR	27d1/13 Dr aggrey road kabwata	Christian	MARRIED	HOME
08-12-22 11:35	Yes	Participant 253	21	MALE	4TH YEAR	Sikanze police camp AK3/2	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 254	21	MALE	4TH YEAR	Kalumbila northwestern	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 255	24	FEMALE	4TH YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:35	Yes	Participant 256	25	MALE	4TH YEAR	Meanwood Ndeke	Christianity	SINGLE	HOME
08-12-22 11:35	Yes	Participant 257	21	FEMALE	4TH YEAR	Kamwala	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 258	24	MALE	4TH YEAR	Chelston	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 259	24	MALE	4TH YEAR	Kitwe	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:36	Yes	Participant 260	28	FEMALE	4TH YEAR	Joe Chibangu road, Chalala	Christianity	SINGLE	HOME
08-12-22 11:36	Yes	Participant 261	24	MALE	4TH YEAR	Monze	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 262	21	FEMALE	4TH YEAR	723 Luvale street, Luanshya	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 263	20	FEMALE	3RD YEAR	Chalala	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 264	21	FEMALE	4TH YEAR	Kamwala south	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 265	24	FEMALE	4TH YEAR	Namibia, Eenhana	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 266	24	MALE	4TH YEAR	Lusaka west fengroove kasupe	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 267	25	FEMALE	4TH YEAR	Lusaka kanyama	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 268	40	MALE	4TH YEAR	Chalala	Christian	MARRIED	BOARDING HOUSE
08-12-22 11:36	Yes	Participant 269	24	FEMALE	4TH YEAR	Box 48 masaiti mpongwe	Roman catholic	SINGLE	BOARDING HOUSE
08-12-22 11:37	Yes	Participant 270	21	MALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:37	Yes	Participant 271	24	FEMALE	4TH YEAR	SZC 660013 Monze	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:37	Yes	Participant 272	23	MALE	4TH YEAR	Roma Extension	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:37	Yes	Participant 273	28	MALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:37	Yes	Participant 274	24	MALE	4TH YEAR	Chalala	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:38	Yes	Participant 275	22	FEMALE	4TH YEAR	E64 LUSAKA WEST	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:38	Yes	Participant 276	30	FEMALE	4TH YEAR	Kabwe	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:38	Yes	Participant 277	24	MALE	4TH YEAR	Kitwe	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:39	Yes	Participant 278	25	MALE	4TH YEAR	LUSAKA	ISLAM	SINGLE	HOME
08-12-22 11:39	Yes	Participant 279	24	MALE	4TH YEAR	Libala south	Christian	SINGLE	HOME
08-12-22 11:39	Yes	Participant 280	24	MALE	4TH YEAR	76/22 makeni	Christianity	SINGLE	HOME
08-12-22 11:41	Yes	Participant 281	23	FEMALE	4TH YEAR	Roma	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:41	Yes	Participant 282	26	MALE	4TH YEAR	Chalala apex area	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:41	Yes	Participant 283	21	FEMALE	4TH YEAR	Kalundu	Christianity	SINGLE	BOARDING HOUSE
08-12-22 11:42	Yes	Participant 284	33	FEMALE	4TH YEAR	Kabwata,	Christian	MARRIED	HOME
08-12-22 11:44	Yes	Participant 285	24	FEMALE	4TH YEAR	Lusaka	Catholic	SINGLE	BOARDING HOUSE
08-12-22 11:44	Yes	Participant 286	23	MALE	4TH YEAR	ITEZHI-TEZHI	Christian	SINGLE	BOARDING HOUSE
08-12-22 11:53	Yes	Participant 287	22	MALE	4TH YEAR	1148 new eucalyptus	Jawshi	SINGLE	BOARDING HOUSE

Timestamp	I give consent to participate in this study	Participant	Age	Gender	Year of study	Official residential address	Religion	Marital status	Residence while in school?
08-12-22 11:53	Yes	Participant 288	23	FEMALE	4TH YEAR	Copperbelt	Christian	SINGLE	BOARDING HOUSE
08-12-22 12:05	Yes	Participant 289	24	MALE	4TH YEAR	CC8 new chachacha	Christian	SINGLE	BOARDING HOUSE
08-12-22 12:11	Yes	Participant 290	20	FEMALE	3RD YEAR	mushakashela rd woodlands lusaka	Christian	SINGLE	HOME
08-12-22 12:28	Yes	Participant 291	25	MALE	4TH YEAR	Mongu	Christian	SINGLE	BOARDING HOUSE
08-12-22 14:33	Yes	Participant 292	20	MALE	3RD YEAR	Mongu western province	Christianity	SINGLE	BOARDING HOUSE
08-12-22 14:35	Yes	Participant 293	22	FEMALE	3RD YEAR	132dkalanga road	Islam	SINGLE	HOME
8-13-2022 4:33:29	Yes	Participant 294	21	FEMALE	3RD YEAR	Samfya	Christian	SINGLE	BOARDING HOUSE
8-14-2022 23:42:13	Yes	Participant 295	22	MALE	4TH YEAR	118 Petauke Road Kansenshi,Ndola.	Christian	SINGLE	BOARDING HOUSE

APPENDIX 2: DASS-21 Questionnaire responses

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 1	0	1	0	1	0	1	2	1	0	1	1	1	1	1	0	1	1	0	0	1	0
Participant 2	2	1	2	0	1	1	0	1	2	1	2	2	2	1	1	1	1	1	2	2	1
Participant 3	1	1	1	0	1	3	1	3	1	1	1	2	1	1	3	1	2	0	2	1	2
Participant 4	2	0	0	1	0	2	1	1	2	2	2	2	2	2	2	1	2	2	1	1	2
Participant 5	0	0	0	0	1	3	1	2	1	0	0	2	1	1	2	1	1	1	0	0	0
Participant 6	3	3	3	0	1	3	3	3	3	3	3	3	3	1	3	2	3	0	2	3	3
Participant 7	1	0	2	2	1	1	0	0	0	1	1	1	0	0	1	0	0	0	1	0	0
Participant 8	1	3	2	0	1	0	0	0	2	1	2	3	2	1	1	2	1	1	3	2	0
Participant 9	2	1	2	0	1	2	1	1	1	2	1	2	2	2	2	2	2	1	1	2	2
Participant 10	1	3	3	3	3	3	0	3	2	3	3	3	3	3	3	3	3	2	3	3	3
Participant 11	1	0	1	0	0	0	0	0	0	1	1	1	1	0	1	1	0	1	0	0	0
Participant 12	2	0	1	1	3	1	1	2	3	2	1	0	2	1	2	0	0	1	0	2	0
Participant 13	1	2	2	0	2	1	1	2	2	2	2	2	2	0	1	2	2	0	0	2	2
Participant 14	2	1	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3
Participant 15	0	1	1	0	1	1	0	0	1	0	1	1	0	0	0	1	1	0	1	1	1
Participant 16	1	0	2	0	3	3	1	1	3	0	2	3	3	1	3	2	0	0	0	3	0
Participant 17	0	1	0	0	1	0	1	1	1	0	0	0	1	0	1	0	1	0	1	0	0
Participant 18	0	1	1	0	2	1	0	0	3	0	3	3	1	2	2	0	3	0	1	3	0
Participant 19	1	0	1	0	0	1	1	1	0	1	0	1	0	0	2	1	0	0	1	1	0
Participant 20	0	0	1	0	1	1	0	1	3	3	2	0	3	2	2	1	3	3	0	0	3
Participant 21	1	1	3	1	3	3	0	3	3	1	0	1	3	3	3	0	0	0	0	1	0
Participant 22	1	0	3	3	0	3	2	3	1	3	3	3	3	0	3	3	3	0	3	1	3
Participant 23	3	0	3	2	3	2	3	3	3	3	2	3	2	0	2	3	3	1	3	0	3

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 24	0	0	1	1	0	1	2	1	1	1	1	1	1	0	0	1	1	1	1	1	1
Participant 25	2	1	1	1	1	2	0	2	2	1	2	1	1	1	1	2	2	2	2	2	2
Participant 26	1	1	0	0	2	2	0	0	0	2	2	2	1	1	0	0	0	1	1	0	1
Participant 27	2	0	1	3	3	1	2	3	3	3	3	3	3	1	3	2	3	1	3	3	3
Participant 28	1	0	3	0	0	0	0	2	1	3	2	3	2	1	2	2	3	1	0	1	3
Participant 29	1	0	2	2	2	2	1	2	2	2	2	2	2	2	2	0	2	0	2	2	2
Participant 30	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Participant 31	0	0	1	0	0	1	0	1	1	1	1	1	0	2	1	0	1	0	0	1	1
Participant 32	1	0	1	0	1	1	0	1	1	1	1	1	0	0	1	1	0	0	0	0	0
Participant 33	2	1	3	1	3	2	1	2	3	3	2	2	1	1	2	2	3	3	2	2	3
Participant 34	2	0	0	2	1	3	3	1	3	3	3	2	3	1	3	3	3	0	1	3	3
Participant 35	1	0	2	1	1	0	2	2	2	1	0	1	0	2	2	1	0	0	1	1	0
Participant 36	0	0	2	3	3	3	3	0	1	1	1	1	1	1	1	3	3	1	2	3	3
Participant 37	2	1	3	2	2	2	3	2	3	3	2	2	2	3	2	2	2	1	3	2	2
Participant 38	0	0	2	1	0	2	0	0	1	2	1	1	0	1	1	0	1	0	0	1	1
Participant 39	0	1	2	1	1	2	0	0	1	1	0	2	1	0	0	1	1	0	2	1	1
Participant 40	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0
Participant 41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
Participant 42	1	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	2	0	1	1	1
Participant 43	3	2	3	0	1	1	0	2	2	2	1	3	1	3	0	1	2	2	3	2	1
Participant 44	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 45	0	1	1	1	0	2	2	2	0	2	1	1	1	0	0	0	0	1	1	2	1
Participant 46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 47	0	1	1	0	1	0	1	1	3	1	1	2	1	0	1	0	0	0	0	2	1
Participant 48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 49	2	0	1	0	3	1	0	2	2	1	1	1	3	2	2	1	1	1	1	2	0
Participant 50	3	0	0	0	3	1	1	3	3	0	2	2	2	0	3	0	0	0	0	0	0
Participant 51	1	2	0	1	2	2	2	2	2	2	1	2	0	2	2	0	2	2	2	2	2
Participant 52	2	2	0	0	1	2	0	2	2	0	1	1	2	1	1	0	0	2	1	0	0
Participant 53	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Participant 54	1	0	0	0	0	0	0	0	1	1	1	1	1	1	2	0	1	0	0	2	2
Participant 55	0	0	0	0	1	1	1	0	1	0	0	0	0	1	1	1	0	1	1	1	0
Participant 56	0	0	1	0	1	0	1	1	1	2	1	1	2	1	1	1	0	1	1	1	0
Participant 57	0	0	0	0	0	1	0	1	1	0	0	1	1	1	1	0	1	1	0	1	0
Participant 58	3	0	1	2	0	0	2	3	3	3	2	1	0	0	3	0	0	0	0	0	0
Participant 59	1	0	1	0	0	0	0	1	1	0	1	1	1	0	1	0	1	0	0	1	1
Participant 60	1	0	1	0	1	1	3	1	1	0	1	1	0	0	2	0	0	0	0	2	0
Participant 61	0	0	1	0	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0
Participant 62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 63	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Participant 64	1	0	3	0	1	3	2	2	1	1	1	2	2	0	1	1	1	0	0	1	0
Participant 65	2	0	2	1	2	3	0	1	2	2	2	3	3	3	2	3	0	0	1	1	0
Participant 66	0	1	2	1	1	1	2	1	1	1	1	2	1	1	1	1	2	0	1	2	2
Participant 67	2	3	2	0	3	3	1	2	3	0	3	2	1	1	3	3	0	1	1	0	0
Participant 68	3	0	0	0	0	0	1	3	0	0	0	1	1	1	1	0	0	0	0	0	0
Participant 69	1	1	1	1	1	1	1	2	2	2	2	3	2	2	1	2	1	2	2	2	2
Participant 70	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
Participant 71	0	2	0	0	3	3	0	2	3	0	2	2	1	0	1	0	1	1	3	2	0
Participant 72	3	1	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3	3
Participant 73	1	2	1	0	0	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	1

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 74	1	0	1	0	0	1	0	1	1	0	1	1	0	0	0	1	0	1	0	0	0
Participant 75	2	0	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Participant 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 77	1	0	1	1	0	2	1	1	1	1	0	1	0	0	1	1	0	0	0	1	0
Participant 78	1	2	0	1	1	2	0	1	2	2	2	1	2	1	1	1	2	1	0	1	3
Participant 79	1	2	1	1	2	1	0	1	2	1	1	2	1	1	2	1	0	2	1	0	0
Participant 80	1	0	1	0	1	0	1	1	2	2	2	2	2	1	0	0	1	0	1	1	0
Participant 81	2	0	1	0	1	2	0	2	1	0	2	1	0	0	1	1	0	1	2	2	0
Participant 82	1	1	0	1	1	1	0	2	1	0	1	2	1	1	0	0	1	1	2	1	0
Participant 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 84	1	1	2	0	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1
Participant 85	2	1	0	2	2	3	3	1	2	2	3	1	2	0	2	1	1	1	2	2	3
Participant 86	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Participant 87	1	1	1	0	0	1	0	1	1	1	0	1	1	1	0	0	1	1	1	1	1
Participant 88	2	1	1	0	1	1	1	2	1	0	2	2	2	2	2	2	2	1	0	0	2
Participant 89	1	0	1	0	1	1	0	2	1	1	1	2	1	1	2	2	0	0	1	2	0
Participant 90	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0
Participant 91	1	1	3	1	3	0	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Participant 92	1	0	1	3	3	3	0	1	2	2	0	3	0	2	3	2	1	3	3	3	3
Participant 93	2	2	2	2	3	3	3	3	3	1	3	3	1	3	2	2	2	2	3	2	1
Participant 94	2	0	3	1	3	2	1	2	2	3	1	3	3	1	2	3	3	0	0	1	3
Participant 95	1	0	3	1	2	3	1	1	3	3	3	2	2	3	1	2	3	1	1	3	2
Participant 96	3	0	3	3	0	3	2	2	3	0	3	3	3	0	3	2	3	0	2	3	0
Participant 97	3	2	3	0	3	2	0	2	3	2	3	3	3	0	2	2	2	0	0	0	0
Participant 98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 99	1	0	0	1	1	1	0	0	2	1	2	0	0	0	1	0	0	0	3	3	0
Participant 100	0	0	2	2	2	3	2	2	3	0	1	1	1	2	2	2	0	0	1	2	0
Participant 101	0	0	1	0	2	3	0	1	1	1	2	1	2	1	3	3	2	2	0	2	1
Participant 102	0	1	1	0	1	0	1	0	1	1	0	1	1	0	1	1	1	0	1	1	1
Participant 103	1	0	2	0	2	1	0	1	2	2	0	1	2	0	1	2	0	1	0	0	0
Participant 104	2	2	2	0	2	2	0	2	2	2	2	2	1	2	2	2	2	2	2	0	2
Participant 105	1	2	1	1	2	2	1	1	2	1	1	1	1	2	1	1	1	0	2	2	1
Participant 106	0	0	1	0	0	1	0	0	2	1	1	0	1	0	2	1	1	0	0	0	0
Participant 107	1	1	2	0	1	1	1	2	2	2	2	2	2	1	2	2	2	1	1	2	2
Participant 108	1	1	3	2	2	1	1	2	3	2	1	1	1	1	1	2	3	2	1	3	3
Participant 109	3	0	3	3	3	2	3	3	3	2	3	3	2	1	3	3	2	0	0	0	3
Participant 110	1	1	2	2	0	1	2	2	2	2	2	1	1	1	1	2	1	1	2	2	1
Participant 111	0	1	2	3	2	0	1	3	3	2	2	2	3	2	2	1	2	2	2	2	2
Participant 112	2	1	3	3	3	1	3	3	3	2	3	3	3	0	2	3	3	3	3	1	0
Participant 113	2	0	0	0	1	0	1	2	1	0	1	1	0	0	0	0	0	0	0	0	0
Participant 114	0	2	2	0	2	0	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2
Participant 115	2	1	3	2	3	3	1	3	3	3	3	2	3	3	2	3	3	2	3	2	3
Participant 116	0	1	1	0	1	1	0	1	1	0	1	0	1	1	0	2	1	1	1	1	0
Participant 117	1	1	2	2	1	2	2	1	0	1	0	1	1	1	1	1	1	1	2	2	1
Participant 118	0	0	1	0	1	0	1	1	0	1	2	1	1	1	2	1	0	0	2	1	0
Participant 119	1	0	1	0	1	1	0	1	0	1	0	0	0	0	1	0	0	0	0	1	0
Participant 120	1	2	2	2	1	2	2	2	2	1	2	1	1	0	1	1	0	1	0	2	1
Participant 121	0	0	2	0	1	3	0	2	3	1	1	2	1	1	3	2	2	0	1	2	2
Participant 122	1	1	2	0	1	1	1	1	0	1	1	0	0	2	1	2	2	1	2	2	1
Participant 123	2	1	2	0	3	2	1	1	2	3	3	3	3	2	1	2	2	1	2	2	2

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 124	0	0	0	0	1	0	0	1	2	0	0	1	0	0	1	1	0	0	0	0	0
Participant 125	1	2	1	0	1	1	1	1	2	0	1	1	0	1	0	0	0	1	1	0	0
Participant 126	0	0	1	0	1	0	0	0	1	0	0	1	0	1	1	1	0	0	0	1	0
Participant 127	0	1	1	0	1	1	0	0	1	0	1	0	0	0	2	0	0	0	0	0	0
Participant 128	0	1	1	0	3	2	1	3	3	3	2	2	3	2	2	2	3	0	3	2	2
Participant 129	0	0	1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	0	0	1	1
Participant 130	2	2	1	0	1	1	2	1	1	0	0	0	1	1	0	0	0	0	1	0	0
Participant 131	1	0	1	0	1	0	1	1	1	0	0	1	1	0	1	1	1	1	0	0	0
Participant 132	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Participant 133	3	0	2	0	0	1	0	0	1	3	3	3	3	2	3	1	3	0	2	3	3
Participant 134	2	0	3	1	1	3	0	2	1	2	2	3	0	1	1	3	1	1	0	0	2
Participant 135	1	0	1	0	1	1	2	1	0	1	0	0	0	1	2	3	0	0	0	2	0
Participant 136	1	1	1	0	1	0	0	0	1	0	1	1	1	1	1	0	0	0	1	0	0
Participant 137	1	0	0	2	1	2	2	3	3	3	2	1	3	2	3	2	0	2	2	2	0
Participant 138	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	1
Participant 139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Participant 140	1	0	1	0	3	1	0	1	1	1	2	1	0	0	0	0	1	0	2	2	0
Participant 141	3	2	2	3	1	3	2	2	3	3	2	2	1	1	3	3	3	3	3	2	1
Participant 142	2	3	3	2	3	2	2	2	2	2	2	2	1	2	2	2	2	1	3	3	3
Participant 143	2	0	0	0	2	0	0	1	1	0	1	0	0	2	0	0	0	0	0	0	0
Participant 144	1	0	0	0	1	1	0	0	1	0	1	1	1	1	1	0	0	0	1	1	1
Participant 145	1	1	1	1	1	2	0	1	2	0	2	1	2	2	1	0	0	2	0	1	0
Participant 146	1	0	1	1	0	3	1	3	3	3	2	1	3	1	3	1	0	0	3	3	2
Participant 147	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Participant 148	1	0	3	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 149	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Participant 150	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
Participant 151	1	0	1	0	0	1	0	2	2	1	0	2	1	2	1	1	1	1	0	1	1
Participant 152	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
Participant 153	2	0	3	3	3	1	2	2	2	1	2	3	3	3	3	1	2	0	3	3	3
Participant 154	1	0	1	1	2	1	2	1	3	0	1	0	0	0	0	1	1	0	2	1	0
Participant 155	1	1	2	2	1	1	2	1	2	2	1	1	1	1	2	1	2	1	2	1	2
Participant 156	2	2	1	2	3	3	3	3	3	1	3	3	2	2	3	3	0	3	3	2	1
Participant 157	2	0	2	3	3	1	3	3	3	1	3	3	2	0	3	1	1	0	3	3	1
Participant 158	2	1	2	2	1	2	0	1	2	2	2	2	1	2	2	2	2	1	2	2	2
Participant 159	1	0	2	3	2	3	3	3	3	2	3	3	3	2	2	3	1	1	3	1	3
Participant 160	2	0	2	1	1	1	0	1	1	1	2	2	1	1	3	2	2	1	1	1	1
Participant 161	2	1	2	1	2	2	2	2	2	1	2	1	1	1	2	2	2	1	1	2	2
Participant 162	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	0	2	2	2	1
Participant 163	3	0	2	3	3	2	3	3	3	2	3	2	3	3	3	2	3	3	2	2	1
Participant 164	1	0	1	2	1	1	3	1	2	1	1	3	0	0	2	0	0	0	1	1	0
Participant 165	2	1	2	0	2	2	0	2	2	0	2	2	1	1	2	2	1	0	1	2	2
Participant 166	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 167	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Participant 168	1	1	2	2	2	1	2	2	1	2	2	1	1	1	2	2	2	0	2	2	2
Participant 169	2	2	0	0	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	2	2
Participant 170	0	1	0	0	1	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
Participant 171	3	0	1	0	1	2	0	3	2	3	3	3	1	0	1	1	0	0	0	0	1
Participant 172	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 173	1	0	0	0	1	1	0	1	0	0	1	2	0	1	1	2	0	0	0	1	0

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 174	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Participant 175	1	2	2	3	3	2	2	1	1	3	3	2	2	3	1	2	1	3	2	3	2
Participant 176	3	1	3	3	3	2	3	3	3	3	2	2	3	1	3	3	3	2	3	2	3
Participant 177	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2
Participant 178	2	1	1	0	3	1	0	3	3	1	2	2	2	1	3	1	0	2	3	2	0
Participant 179	1	0	1	0	1	2	0	1	0	1	1	1	1	2	0	0	0	1	1	0	1
Participant 180	1	0	1	0	1	2	1	1	1	0	1	1	1	1	2	1	0	0	0	1	0
Participant 181	1	1	2	2	2	2	1	2	2	2	2	2	1	1	1	2	1	1	2	2	2
Participant 182	2	2	1	3	2	1	2	2	3	1	2	2	3	2	2	2	2	0	3	2	2
Participant 183	2	3	1	1	3	3	1	3	3	0	3	2	1	3	3	1	0	2	3	3	1
Participant 184	1	0	1	2	2	3	2	3	3	1	3	2	2	3	3	1	0	0	0	3	0
Participant 185	1	1	0	1	0	1	2	1	0	0	2	1	0	1	2	3	0	0	0	3	3
Participant 186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 187	2	3	3	3	2	1	2	2	1	1	3	1	2	1	2	1	1	1	3	3	0
Participant 188	2	1	1	1	2	2	0	1	2	1	3	2	1	1	3	2	1	0	2	2	0
Participant 189	0	3	1	1	1	2	1	1	2	0	1	2	1	1	1	2	1	1	1	2	0
Participant 190	1	0	3	0	0	0	0	1	0	3	1	1	2	0	0	3	3	0	0	1	3
Participant 191	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Participant 192	0	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	0
Participant 193	1	2	1	1	0	2	3	3	3	0	1	2	0	3	2	0	0	0	1	0	0
Participant 194	3	1	3	1	3	3	3	3	3	3	3	3	3	1	3	1	3	1	1	2	1
Participant 195	1	1	1	1	2	1	2	1	2	3	2	1	2	1	2	3	3	3	2	3	2
Participant 196	1	2	1	0	3	2	3	3	3	2	2	1	3	2	2	3	2	0	2	3	1
Participant 197	1	0	2	0	2	1	0	2	1	1	2	2	1	1	2	2	1	0	1	1	1
Participant 198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

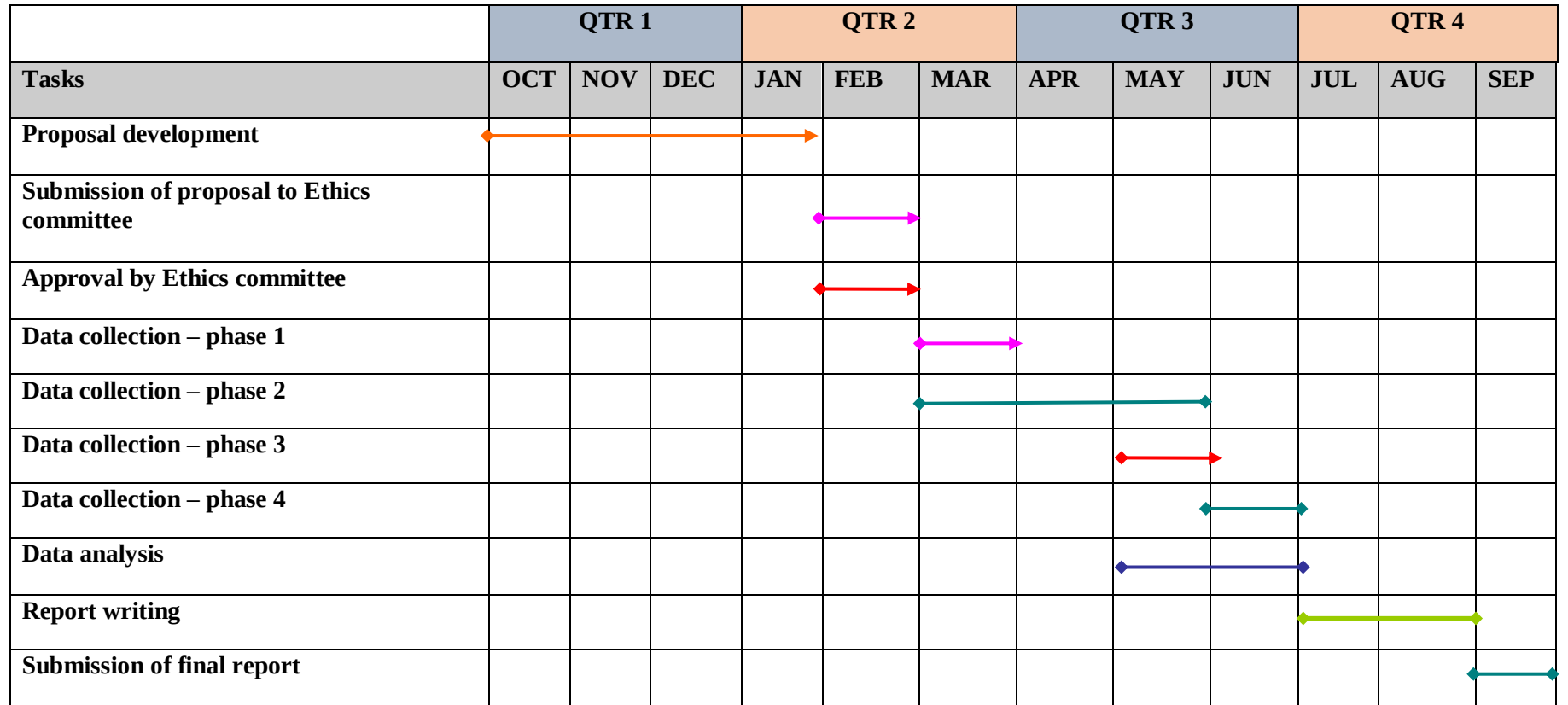
PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 199	1	2	1	1	0	1	2	1	1	0	0	1	1	0	1	0	1	0	2	1	1
Participant 200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 201	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Participant 202	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0
Participant 203	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	1	1	0	1	0	2
Participant 204	0	0	1	0	2	1	2	1	2	2	2	1	2	1	1	2	1	1	1	1	2
Participant 205	0	1	1	2	2	2	2	2	1	1	1	1	1	1	0	0	1	1	1	1	1
Participant 206	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Participant 207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1
Participant 208	0	2	1	1	2	1	1	1	1	2	0	1	2	1	2	2	1	1	1	2	1
Participant 209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 210	2	0	1	0	1	1	0	1	3	1	1	2	1	1	2	1	0	0	0	2	1
Participant 211	1	2	3	1	1	2	3	2	2	2	1	2	1	2	2	1	3	1	2	3	1
Participant 212	0	0	2	0	1	0	2	2	0	2	1	2	2	0	0	1	2	0	0	1	2
Participant 213	1	0	1	0	2	1	0	1	1	1	1	1	0	0	1	1	0	1	0	0	0
Participant 214	2	0	1	1	2	2	1	3	2	1	2	1	3	2	2	2	1	2	2	1	2
Participant 215	1	0	2	0	1	0	0	1	2	0	0	2	0	0	0	1	0	0	0	0	0
Participant 216	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0
Participant 217	1	0	1	0	2	2	2	3	2	1	3	1	1	0	2	2	1	0	0	2	0
Participant 218	2	2	2	0	2	2	2	2	2	2	2	2	0	2	2	2	2	0	2	2	2
Participant 219	2	0	1	1	1	1	2	2	0	1	2	2	1	0	0	1	1	0	0	1	0
Participant 220	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	1	0	0	0
Participant 221	1	1	1	1	1	2	0	0	2	0	0	2	1	1	0	2	0	0	0	0	0
Participant 222	0	1	1	0	1	1	1	0	1	1	0	1	0	1	1	1	1	0	0	1	1
Participant 223	0	1	1	0	0	0	1	0	1	1	0	1	0	1	1	1	0	1	0	1	1

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 224	0	0	2	1	0	2	1	2	1	3	0	2	0	1	1	0	3	0	1	3	1
Participant 225	1	2	1	1	1	0	0	1	1	2	1	1	0	1	0	0	1	0	1	0	0
Participant 226	2	0	2	0	2	0	2	2	2	2	2	2	2	0	2	2	2	0	2	0	2
Participant 227	0	0	1	3	0	0	1	1	0	0	1	3	2	2	1	0	0	1	0	1	0
Participant 228	1	0	0	0	1	0	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0
Participant 229	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
Participant 230	2	2	3	2	3	2	0	1	3	3	2	3	3	2	3	3	2	1	3	3	0
Participant 231	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0
Participant 232	2	3	1	0	0	0	2	1	3	1	0	1	0	0	1	1	1	1	3	1	0
Participant 233	2	0	1	0	0	2	0	2	2	0	2	2	1	1	1	1	0	1	0	1	1
Participant 234	1	1	2	1	2	1	1	2	2	1	2	2	0	1	0	1	1	2	0	0	2
Participant 235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 236	2	3	1	3	1	3	3	3	3	1	2	2	1	1	3	0	0	0	3	2	1
Participant 237	1	2	1	1	1	2	0	2	3	1	1	1	0	1	0	3	0	0	3	0	0
Participant 238	1	2	1	2	2	2	2	3	3	0	1	1	0	1	3	2	1	2	2	3	0
Participant 239	1	0	2	0	1	1	0	2	1	1	1	0	3	1	1	1	1	0	0	1	0
Participant 240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 241	1	0	1	0	1	0	0	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Participant 242	1	2	3	1	3	3	2	3	3	1	3	3	1	2	2	1	0	2	1	3	0
Participant 243	1	1	2	0	1	2	0	2	1	0	0	2	1	1	1	1	0	1	0	2	1
Participant 244	0	1	2	0	0	2	1	1	0	0	0	0	1	0	0	0	0	0	1	0	0
Participant 245	1	1	1	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	0	0
Participant 246	2	0	0	2	1	2	2	2	1	0	2	2	1	2	2	1	1	0	2	1	2
Participant 247	1	0	0	0	1	1	0	1	1	0	1	1	0	0	0	0	0	0	1	0	0
Participant 248	0	0	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	2

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 249	0	0	0	0	1	0	2	0	1	0	1	3	0	0	0	0	0	0	0	1	0
Participant 250	0	0	1	1	2	1	2	2	1	1	0	1	0	2	1	0	2	0	2	2	1
Participant 251	3	1	2	1	2	1	3	2	1	3	2	3	0	0	2	3	2	0	1	2	1
Participant 252	1	1	2	1	1	1	2	0	1	0	1	1	2	1	1	0	0	1	1	1	0
Participant 253	2	2	2	0	2	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Participant 254	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 255	2	2	3	0	3	3	3	3	3	3	3	3	3	3	3	3	1	1	3	3	1
Participant 256	0	0	1	0	1	1	0	1	2	1	1	2	1	1	2	0	1	1	2	0	0
Participant 257	1	0	1	1	2	0	1	2	1	2	2	1	2	2	2	2	2	2	2	3	1
Participant 258	0	0	1	0	0	0	1	0	1	1	0	1	0	0	1	0	0	0	0	0	0
Participant 259	1	0	1	0	1	1	1	2	2	1	1	1	1	2	1	1	1	0	1	1	1
Participant 260	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 261	0	0	0	0	2	2	0	1	1	1	1	1	0	0	1	0	0	0	0	0	0
Participant 262	1	1	3	2	2	1	1	2	3	3	2	1	1	1	2	1	3	1	2	2	3
Participant 263	1	0	2	2	2	2	2	1	0	2	2	1	1	1	3	2	1	1	2	2	1
Participant 264	0	0	1	0	1	0	1	1	0	1	1	0	1	0	1	1	0	0	0	1	0
Participant 265	0	0	0	0	1	1	0	1	1	1	1	1	0	1	1	1	0	0	1	1	0
Participant 266	2	3	1	0	1	3	2	2	2	1	2	3	2	1	2	1	2	2	1	3	2
Participant 267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 268	1	1	1	0	1	2	0	1	2	2	1	2	1	1	2	1	2	1	1	1	2
Participant 269	2	2	1	1	1	2	2	2	2	1	2	1	2	2	2	1	2	1	1	2	1
Participant 270	1	0	1	1	2	2	2	1	1	0	1	2	1	1	0	1	1	1	0	1	0
Participant 271	3	0	2	0	0	1	1	2	3	3	3	3	3	3	3	3	3	0	3	3	3
Participant 272	2	1	2	1	1	1	2	2	2	1	2	3	2	2	2	1	0	1	0	2	0
Participant 273	0	0	1	0	0	1	1	1	2	0	1	1	1	1	0	1	2	2	0	2	1

PARTICIPANT	1 (s)	2 (a)	3 (d)	4 (a)	5 (d)	6 (s)	7 (a)	8 (s)	9 (a)	10 (d)	11 (s)	12 (s)	13 (d)	14 (s)	15 (a)	16 (d)	17 (d)	18 (s)	19 (a)	20 (a)	21 (d)
Participant 274	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0
Participant 275	2	0	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2
Participant 276	2	1	2	2	2	2	0	1	2	2	2	2	2	2	2	2	2	0	0	2	2
Participant 277	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Participant 278	0	0	1	0	1	2	0	1	2	1	2	1	1	2	1	1	0	1	0	0	1
Participant 279	1	1	1	0	0	1	0	1	1	1	1	1	1	0	1	1	1	0	1	0	1
Participant 280	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Participant 281	1	0	1	0	1	0	0	1	1	2	0	2	0	0	1	1	0	0	0	1	0
Participant 282	0	3	3	0	1	0	0	1	1	1	1	1	0	0	1	2	3	0	0	3	2
Participant 283	0	0	0	0	1	1	0	1	1	0	0	0	1	0	1	0	0	0	1	0	0
Participant 284	1	0	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1	1	2	1
Participant 285	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
Participant 286	1	0	0	1	1	2	1	1	2	1	0	2	0	0	0	2	0	1	0	1	0
Participant 287	3	1	0	0	3	3	3	3	0	1	3	3	0	0	1	1	1	0	3	1	0
Participant 288	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Participant 289	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	1	0
Participant 290	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Participant 291	2	1	0	1	0	2	2	2	2	0	1	1	0	1	2	1	0	0	0	1	0
Participant 292	1	1	1	1	1	0	0	2	1	1	0	0	1	1	0	1	1	0	2	0	1
Participant 293	1	0	2	3	0	3	3	2	3	1	3	1	2	0	2	3	0	2	3	2	1
Participant 294	3	0	3	0	1	2	0	1	3	3	1	3	2	1	2	3	3	0	2	2	3
Participant 295	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0

APPENDIX 3: Gantt Chart



APPENDIX 4: Budget

SN	ITEM	APPROXIMATE COST
1	Ethical Review submission fee	K 700
2	Stationery and printing	K 1,000
3	Data entry, Transcription process and analysis	K 2,000
4	Thesis preparation costs	K 3,000
5	Transport	K500
6	Contingency	K 1,000
	TOTAL	K 8,200