

***PREVALENCE AND FACTORS ASSOCIATED WITH PERCIEVED STRESS AMONG
KIU MEDICAL STUDENTS AT KIRYANDONGO SATELLITE CENTRE.***

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**A RESEARCH REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE AWARD OF BACHELOR OF MEDICINE
AND BACHELOR OF SURGERY AT KAMPALA
INTERNATIONAL UNIVERSITY**

JAN 2019

DECLARATION

This is to declare that this research report is my own work and has never been presented anywhere to any academic institution for any award other than the one for which it is now being submitted.

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APPROVAL

This is to approve that this study has been designed under my direct support and supervision and is now ready to be submitted to the faculty of clinical medicine and dentistry of Kampala International University in partial fulfillment for the award of Bachelor of Medicine and Bachelor of Surgery of Kampala International University.

Signature _____ Date _____

DR. MAKHOBA ANTHONY

SUPERVISOR

DEDICATION

This research is dedicated to my father, Mr. Nazarene Igama, who refused to give up on me and paid me through medical school even with all the odds against him from the beginning. You are awesome!

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LIST OF ABBREVIATIONS

KIUTH: Kampala International University Teaching Hospital

SPSS: Statistical Software Package for Social Scientist

UNAIDS: United States Agency for International Developments

WHO: World Health Organization

UBOS: Uganda Bureau of Statistics

KIUWC: Kampala International University, Western Campus

PSS: Perceived Stress Scale

DASS: Depression, Anxiety and Stress Scale

MBChB: Bachelor of Medicine and Bachelor of Surgery

DCM: Diploma in Clinical Medicine

OPERATIONAL DEFINITIONS

Perceived stress:

Perceived stress is the feeling or thought that an individual has about how much **stress** they are under at a given point in time or over a given time period.

Depression:

Depression, in psychology, is a mood or emotional state that is marked by feelings of low self-worth or guilt and a reduced ability to enjoy life.

Anxiety:

Anxiety is an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure.

ABSTRACT

Background: Stress and its psychological manifestations are currently a major source of concern. Medical education poses challenging and potentially threatening demands for students throughout the world.

Objectives: To determine the prevalence and factors associated with perceived stress among medical students at KIUWC Kiryandongo Satellite Centre, Kiryandongo, Uganda

Materials and Methods: This was a cross-sectional study on all medical students from KIUWC enrolled at Kiryandongo Satellite Centre. Data was collected using a questionnaire based on the Perceived stress score instrument in addition to some socio-demographic characteristics.

Appropriate statistical test procedures were used to study the magnitude of stress and its risk factors.

Results: Of the 120 MBChB students included in the study, 73 (60.8%) had severe stress. Severe stress was significantly associated with academic and psychological stressors.

The academic stressors students pointed out were frequency of examinations, 72 (60%); wide academic curriculum, 66 (55%); performance in practical examinations, 62 (51.7%); average performance in exams, 51 (42.5%); stringent university rules, 54 (45%); lack of time for recreation, 41 (34.2%); and competition with peers, 48 (40%).

Of the psychosocial stressors, students frequently reported financial strain, 71 (59.2%); worrying about the future, 59 (49.2%); difficulty in the journey back home, 56 (46.7%); lack of personal interest in medicine, 47 (39.2%); political situation of the country, 47 (39.2%); loneliness, 46 (38.3%) and high expectations by parents, 43 (35.8%).

Academic stressors were the most prevalent with 17 students (14.2%) reporting to have experienced stress often and always, followed by psychosocial stress, 13 (10.8%) and health stressors, 6 (5.0%).

Conclusion: Perceived Stress among medical students is highly prevalent and significantly associated with the academic stressors specifically frequency of examinations, wide academic curriculum, performance in practical examinations, average performance in exams, and stringent university rules. Implementation of coping programs is necessary, and compassionate handling of students' issues both academic and financial by the university administration is crucial.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Student-activating teaching methods support learning (Biggs et al, 2011) but a student's progress is often impacted by cognitive and emotional factors unique to the individual (Mann, 2011). Positive emotions such as interest, enthusiasm, and determination, as well as the negative emotions of irritability, nervousness and anxiety related to academics have been shown to impact learning outcomes (Pekrun et al, 2002). In addition, stress is an important independent factor affecting learning (Elo et al, 2003; Sreeramareddy et al, 2007).

Experience of stress has been shown to have a negative impact on skills-training as reported by a study done on medical students in which objective measurements such as cortisol level and blood pressure were used (Flinn et al, 2016). Earlier studies have highlighted that stress amongst physicians starts as early as medical school and persist throughout a physician's career (Dyrbye et al, 2006). Furthermore, depressive disorders are more common among medical trainees compared to age-matched controls (Mousa et al, 2016). All learning activities including lectures, clinical rotations and scientific projects are intended to contribute to the medical students' professional development.

Professional roles within the medical field have been defined for example by The Royal College of Physicians and Surgeons of Canada in terms of a competency-based framework known as CanMEDS (Frank et al, 2007). CanMEDS is a useful tool for studying medical students' professional development and has also been used in a Swedish context (Kalen et al, 2015). However, as far as we know the association between learning activities related to CanMEDS Roles and individual perception of stress has not been studied previously from a longer perspective i.e. by following a student group through several terms.

One reason might be that collecting data on students' learning activities prospectively over a period of time can be challenging, especially if the data are intended to mirror the current state and are collected in real-time. A validated way for prospective data collection is to use the Contextual Activity Sampling System (CASS) (Lachmann et al, 2012) a methodology inspired by the Experience Sampling Method (Csikszentmihalyi and Larson, 1987) thus designed to collect data on the experience of ongoing activities by frequent distribution of questionnaires via mobile data technology. The advantage of CASS is that subjects are not affected by recall bias regarding their

experiences, in contrast to summative course evaluations at the end of each rotation, i.e., conventional retrospective evaluations (Lachmann et al, 2012).

Therefore, this study aimed to prospectively investigate medical students' perceptions of stress and other emotions related to background factors and learning activities as defined by professional roles using CanMEDS framework.

1.2 Statement of the problem

According to a recent study by Johns Hopkins, more than 250,000 people in the United States die every year because of medical mistakes, making it the third leading cause of death after heart disease and cancer. And yet in training, all learning activities including lectures, clinical rotations and scientific projects are intended to contribute to the medical students' professional development as defined by The Royal College of Physicians and Surgeons of Canada in terms of a competency-based framework known as CanMEDS (Frank et al, 2007) and yet this proves to be too stressing to medical students.

Experience of stress has been shown to have a negative impact on skills-training as reported by a study done on medical students, biochemically manifesting with raised cortisol level and blood pressure (Flinn et al, 2016). Earlier studies have highlighted that stress amongst physicians starts as early as medical school and persist throughout a physician's career (Dyrbye et al, 2006).

Furthermore, depressive disorders are more common among medical trainees compared to age-matched controls (Mousa et al, 2016). With these literature review, it could be postulated that stress among medical students which continues throughout their professional life could hold key insight into these medical mistakes.

1.3 Justification

Several studies has been done globally to assess the level of perceived stress among medical students in India, Pakistan, Malaysia, Ethiopia among many and yet minimal data exist for east African countries and most of all Uganda.

KIUWC as a private institution has stringent rules and policies, not forgetting a high cost of both tuition and living; this makes medical students in this institution more susceptible to risk of stress, anxiety and depression.

Therefore, this study aimed to prospectively investigate medical students' perceptions of stress and other emotions related to background factors and learning activities as defined by professional roles using CanMEDS framework at KIUWC and propose ways of eliminating, reducing or at least cope with stress.

1.4 Objectives of the study

1.4.1 Main objective

To determine the prevalence and risk factors associated with perceived stress among KIU medical students at Kiryandongo Satellite Centre.

1.4.2 Specific objectives

- 1) To assess the prevalence of perceived stress among KIU medical students at Kiryandongo Satellite Centre.
- 2) To describe the factors associated with perceived stress among KIU medical students at Kiryandongo Satellite Centre.

1.5 Research questions

- 1) What is the prevalence of perceived stress among KIU medical students at Kiryandongo Satellite Centre?
- 2) What are the factors associated with perceived stress among KIU medical students at Kiryandongo Satellite Centre?

1.6 Conceptual Framework

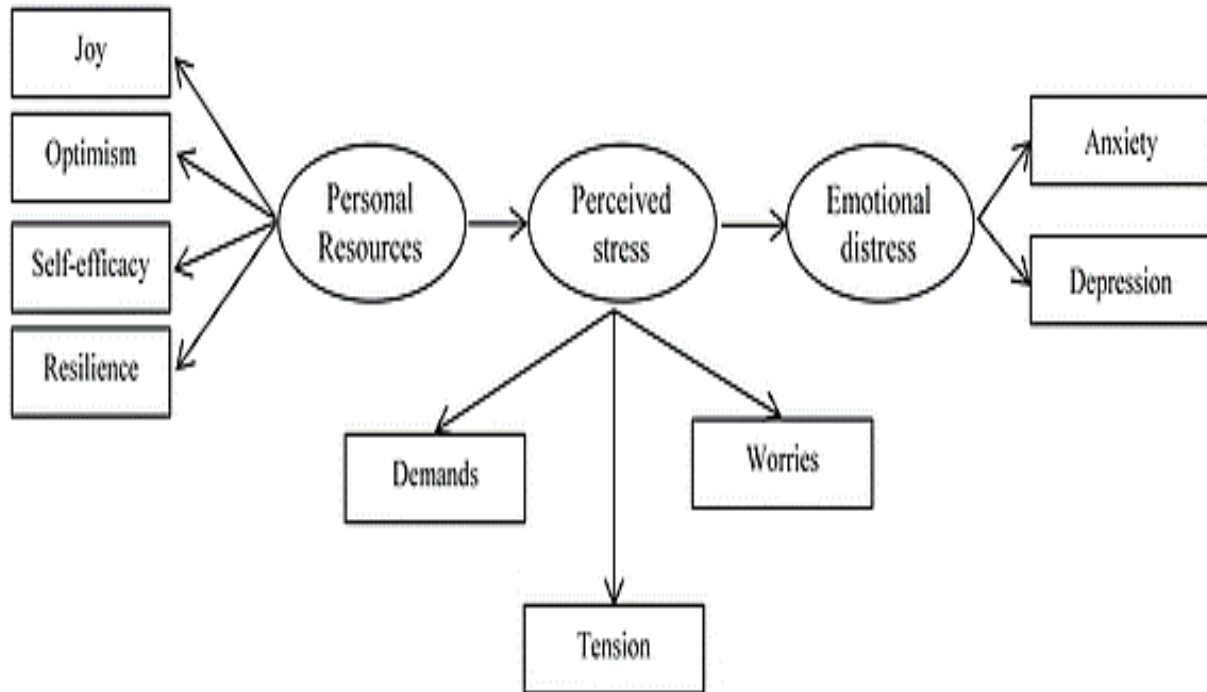


Figure 1. 1: Illustration of the study conceptual model of the different pathways linking socio-demographic characteristics and stress among medical students (Monika et al, 2017)

CHAPTER TWO

LITERATURE REVIEW

2.1 Prevalence of stress among medical students

The overall prevalence of stress among medical students in Bangladesh is 54%. 53% of male and 55% of female were reported suffering from stress. 54% of Year-III students and 55% of Year-IV were noted suffering from stress. There were statistically significant differences in the level of stress between a public and private medical schools student (Eva et al. 2015)

In a study conducted in Fayoum University in Saudi Arabia, the Overall prevalence of stress, anxiety and depression with various degrees was 62.4%, 64.3%, and 60.8% among studied sample respectively. Higher stress and anxiety scores were significantly associated with female sex, older age, and BMI more than 25 kg/m². Higher depression score was associated with increasing age, low socioeconomic standard and among students from other governorates (Wafaa et al, 2017).

In Pakistani medical schools, the mean (SD) PSS-14 score was 30 (6.97). Logistic regression analysis showed that cases of high-level stress were associated with year of study and academic-related stressors only (Waqas et al, 2015)

In a study conducted in King Saud bin Abdulaziz University for Health Sciences in Riyadh, Saudi Arabia; a high prevalence of poor sleep quality (76%) and stress (53%) were found, with a statistically significant association. Logistic regression indicated that students who are not suffering from stress are less likely to have poor sleep quality, and the risk of having poor sleep quality is almost four times higher in students whose cumulative grade point average (GPA) is less than 4.25 (Abdullah et al, 2017).

Medical Students with severe stress constituted 33.8%, and 30% were well in a cross sectional study conducted at King Saud Abdul-Aziz University in Saudi Arabia. Severe stress is significantly associated with female gender and junior level. Nervousness, feeling hopeless, feeling restless, and depressed were the most important factors affecting students' stress scores. Factor analysis revealed three hidden factors for stress in this group, namely, depression, nervousness, and age (Abdalla et al, 2016).

Leta et al (2015) found out that 52.4% of the students were stressed. Academic related stressor domain was the main source of stress among 281 (88.6%) students. Stress was significantly associated with khat chewing, smoking, and alcohol intake. The prevalence of stress was high

during the initial three years of study. Stress was significantly high but negatively correlated with academic achievement (Leta et al, 2015).

Hamza et al (2014) showed that nearly 73.0% of interns in Saudi Arabia hospitals were under stressed conditions. Most of the interns were affected by a severe level of stress (34.9%), followed by mild (19.3%) and moderate (18.8%) levels of stress. The stress level was significantly higher (84.0%) among female interns in comparison with male interns (66.5%). There were statistically significant differences between the percentages of male and female interns at mild, moderate, and severe stress levels. Marital status had no role in causing stress. The highest stress level was reported by interns during the clinical rotations of medicine (78.8%), followed by surgery (74.7%), pediatrics (72.4%), obstetrics and gynecology (70.1%), and emergency (58.3%). The prevalence of stress among the interns and their corresponding clinical rotations in all three hospitals had significant linear correlations (Hamza et al, 2014).

A study by Zohair et al (2018) at King Saud Abdul-Aziz medical school showed that 59.2% of medical students were stressed and was significantly high in students with more than 5 sibling as compared to the mean PSS score for students with sibling ≤ 5 . Similarly, the mean PSS score of students with often/always occurrence of psychosocial stressors was higher as compared to the mean PSS score of those students with less than a frequent occurrence of stressors.

2.2 Causes of stress among medical students

Two key dilemmas facing medical students with regard to the social psychological factors was investigated by Kenneth et al (2014). First, a diverse set of interests and a high level of self-complexity is thought to buffer against the effects of stress and might also be beneficial for medical practitioners, but the intensive nature of medical education makes it difficult for students to pursue outside interests, leading to a strongly focused identity. Second, a strong group identity is associated with high levels of social support and improved well-being, but unhealthy group norms may have a greater influence on individuals who have a strong group identity, encouraging them to engage in behaviors that place their well-being at risk. A model is proposed outlining how these potentially contradictory social psychological processes may combine to impact upon medical students' well-being (Kenneth et al, 2014).

Muneer et al (2015) studied five hundred and twenty nine (529) medical students in Malaysia and discovered that Fear of failing the course at the end of year exams; concerns regarding completion

of clinical work; and examination results and grades were found as top stressors among dental students. Female students had higher stress scores than males with respect to personal issues, academic performance, educational environment and learning of clinical skills. Students from public universities had higher stress scores than their counterparts from private universities (Muneer et al, 2015).

In a random sampling cross sectional study done at Soba University, Khartoum with the aim of determining the prevalence of depression, anxiety and stress among medical students, More than 50% of Students had different grades of depression, anxiety, and stress where 21%, 22%, and 16% had moderate degree of depression, anxiety, and stress respectively. However, stress and anxiety showed significant differences in different academic years, notably between the middle years, and second and final years. The quality of environment and physical health seems to play a key role in student mental health (Mohamed et al, 2016).

Higher age-group, year of studying bachelor of medicine and bachelor of surgery, vastness of academic curriculum, fear of poor performance in examination, lack of recreation, loneliness, family problem, and accommodation away from home were important determinants of perceived stress, as was demonstrated by a cross sectional study done in Tamil Nadu medical schools (Anuradha et al, 2017).

In a study at King Saud Abdul-Aziz medical school, the mean PSS score among medical students was with a median of 28.0 (IQR 26.0–31.0) and 59.2% of participants were stressed. The mean PSS score for students with sibling > 5 was significantly higher as compared to the mean PSS score for students with sibling ≤ 5 . Similarly, the mean PSS score of students with often/always occurrence of psychosocial stressors was higher as compared to the mean PSS score of those students with less than a frequent occurrence of stressors. Moreover, those students that were more stressed had lower marks in the last exam ($< 80\%$) as compared to students with less stress who had higher marks (Zohair et al, 2018).

2.3 Effects of stress on medical students

The quality of environment and physical health seems to play a key role in student mental health (Mohamed et al, 2016). The mean perceived stress score was high. Higher age-group, year of studying bachelor of medicine and bachelor of surgery, vastness of academic curriculum, fear of poor performance in examination, lack of recreation, loneliness, family.

It's established that the number of siblings also contributes to stress among medical students. The mean PSS score for students with sibling > 5 was significantly higher as compared to the mean PSS score for students with sibling ≤ 5 . Similarly, the mean PSS score of students with often/always occurrence of psychosocial stressors was higher as compared to the mean PSS score of those students with less than a frequent occurrence of stressors. Moreover, those students that were more stressed had lower marks in the last exam ($< 80\%$) as compared to students with less stress who had higher marks ($\geq 80\%$) ($P < .05$) (Zohair et al, 2018).

There is significant relationship between the complexity of Human Physiology curriculum and the number of cases of depression, resulting in low academic average; high correlations were among Human Physiology contents and those of Biochemistry and Anatomy. It is important to implement support programs to follow students' emotional welfare as well as to go over the subject's content (Guzmán et al, 2015).

Performance in practicals, examinations frequency, disappointment with the class lectures, lack of personal interest in medicine, lengthy academic curriculum/syllabus, worries about the future and periodic examinations performance were rated as severe (Zohair et al, 2018).

The logistic regression analysis showed that stress cases were linked with last exam marks, number of siblings and academic stressor but no significant relationship was found (Zohair et al, 2018).

Fear of failing the course at the end of year exams; concerns regarding completion of clinical work; and examination results and grades were found as top stressors among dental students. Female students had higher stress scores than males with respect to personal issues, academic performance, educational environment and learning of clinical skills. Students from public universities had higher stress scores than their counterparts from private universities (Muneer et al, 2015).

Higher age-group, year of studying bachelor of medicine and bachelor of surgery, vastness of academic curriculum, fear of poor performance in examination, lack of recreation, loneliness, family are highly correlated with the high mean perceived stress score (Mohamed et al, 2016).

In Pakistani medical schools, Univariate analysis identified 157 cases with high stress levels (59.7%). The mean (SD) PSQI score was 8.1 (3.12). According to PSQI score, 203/263 Students (77%) were poor sleepers (Waqas et al, 2015)

2.4 Coping strategies

The most common and widely used stress coping mechanisms included sleeping, listening to music and talking with friends and family. Effective coping strategies identified to minimize stress were

religious activities like praying/worshiping and meditation. Moreover, seeking advice from lecturers, seniors, going home and engaging in sports and games were also found to be effective in lessening stress (Noordeen et al, 2018).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the blue print of this study that is the method that shall be used in the study. This includes the Research Design, Study area, Study population, Sampling methods, Criteria for selection of sample, Sampling size determination, Data collection method, Quality control, Data Management, Ethical considerations, Anticipated study limitations and delimitations and Dissemination of Results.

3.2 Research Design

The research was a cross-sectional study. A combination of qualitative and quantitative data collection methods were used. The questionnaires were distributed to the interviewees and waited for them to fill and collected after they had finished. The questionnaires were written in English, the language that is convenient to all the interviewees.

3.3 Study area

The study was conducted at Kiryandongo General Hospital which is on the Kampala-Gulu highway, in Kikube parish, Kiryandongo sub county, Kibanda county, in Kiryandongo district, about 50 km (31 miles), north-east of Masindi General Hospital. This is approximately 211 km (131 miles) north of Mulago National Referral Hospital, the largest hospital in Uganda. The coordinates of 01⁰52'46.0"N, 32⁰03'43.0"E (latitude: 1.879439; Longitude: 32.061950)

3.4 Study population

Kampala International University School of Health Sciences, Western Campus houses over 5,000 students supervised by over 200 academic staff. Fourth and fifth year students are posted to satellite centres all over the country including Kiryandongo, Jinja, Fort Portal, Mubende and Hoima referral hospitals. Kiryandongo Satellite Centre harbors about 160 MBChB and 40 DCM students from KIUWC.

3.5 Sampling methods

Sampling is the process of selecting a segment of the population to represent the entire population. The study utilized random sampling as it allows the researcher to select subjects from a population using random procedures (Christensen et al., 2011). Systematic sampling was used to select participants i.e., the researcher distributed the PSS questionnaires to each interviewee who was informed about the purpose of the study by reading out from a covering letter and explaining it to them. The researcher informed the subjects that the information would be used for improvement of mental health care services for medical students and the anonymity of the responders was strictly maintained. The subjects could opt not to disclose their names. One to one interview was conducted at Kiryandongo general hospital.

3.6 Criteria for selection of sample

3.6.1 Inclusion criteria

- i. Students who consented to participate in the study voluntarily were enrolled in this study.
- ii. Students who are 4th and 5th year students of KIU medical school.
- iii. Students at Kiryandongo Satellite Centre.

3.6.2 Exclusion criteria

- i. Students who declined to participate in this study were excluded from this study
- ii. Those who are not students of KIU medical school
- iii. Students who are not in their 4th and 5th year of study
- iv. Students from other satellite centers

3.7 Sampling size determination

Sample size was calculated according to M. Fishers formula.

$$N = \frac{Z^2 PQ}{D^2}$$

N=Desired sample size

Z=standard deviation at the desired degree of accuracy = 95%=1.96%

P= Proportion of The prevalence of perceived stress among medical students was 76.8% which was taken from previous study in Kancheepuram district, Tamil Nadu (Vidya et al, 2018). Therefore $76.8\%=0.768$ was used.

$Q=1-P$

D=Acceptable level of error= $5\%=0.05$

Therefore $N=274$

3.8 Data collection method

The researcher distributed the PSS questionnaires to each interviewee who was informed about the purpose of the study by reading out from a covering letter and explaining it to them. The researcher informed the subjects that the information would be used for improvement of mental health care services for medical students and the anonymity of the responders was strictly maintained. The subjects could opt not to disclose their names. One to one interview was conducted at Kiryandongo general hospital.

3.9 Quality control

Data collection tools and observation checklist was pre-tested on 20 people for reliability before actual data collection.

The following steps were taken to ensure the quality and validity of the data. The research assistants were recruited from people with healthcare background and given adequate training. The content of the training include the purpose and objectives of the study, data collection techniques and tools to be used, actual data collection and ethical issues or considerations. The principal Investigator was part of the team during the interviews to ensure that the relevant information is collected. Questionnaires returned was checked for mistakes and completeness. Errors and omissions detected was discussed with the respective assistants and asked to go back and make the necessary corrections. All data collected was entered twice by two different qualified personnel to ensure validity.

3.10 Data Processing and Analysis

The data collected using semi-structured questionnaires was checked for uniformity, consistency and accuracy. Quantitative data was processed using Epi-data 3.10 software. This program is ideal

for quantitative data since it has an advantage over other program in that it permits skip instructions for filter questions. Data validation was performed on at least 10% of the questionnaires entered. This was done using a double data entry system. The raw data was exported to the Statistical Package for Social Sciences Software (SPSS) via a data entry query for analysis. Frequency tables and cross tabulations was produced. Bivarriate analysis was performed on certain variables to establish existence of relationships. Contingency tables was used to facilitate presentation of findings. Qualitative data obtained from focus group discussions was transcribed and then manually analyzed using themes.

3.10.1 Data presentation

The data was analyzed to generate the following:

- Frequency distribution of various demographic parameters of the students
- Tables showing the frequency of each response obtained for the listed questions
- For some of the key questions cross-tabulations was done to show the frequency of different responses by the variables like age, place of residence and education.

Chi square tests was used to assess whether there was a significant difference in the frequencies of the responses across different variables. A p-value of less than 0.05 was considered as significant.

3.11 Ethical considerations

KIU Research Review Board approval was obtained. During the study, all information collected remained in privacy. Anonymity was taken into account by not disclosing names. The study also obtain informed consent from the informant

3.12 Anticipated study limitations and delimitations

The limitations of the study are the biases inherent to any questionnaire survey based study which may be as follows:

Selection Bias: In spite of taking adequate care to follow the scientifically valid methods of representative samples, selection bias cannot be ruled out entirely as only a small proportion of the total target population was studied.

Social Acceptability Bias: The subjects may not be truthful all the time in their responses in apprehension of hurting the sentiments of the interviewers.

Recall Bias: The subjects need to respond to some of the survey questionnaires based on their memory where there is chance of error.

However, attempts were made to minimize such errors as much as possible through appropriate research design and methodology.

3.13 Dissemination of Results

A copy of results was disseminated to Kampala International University Western Campus library, and Faculty of Clinical Medicine and Dentistry Kampala International University Western Campus.

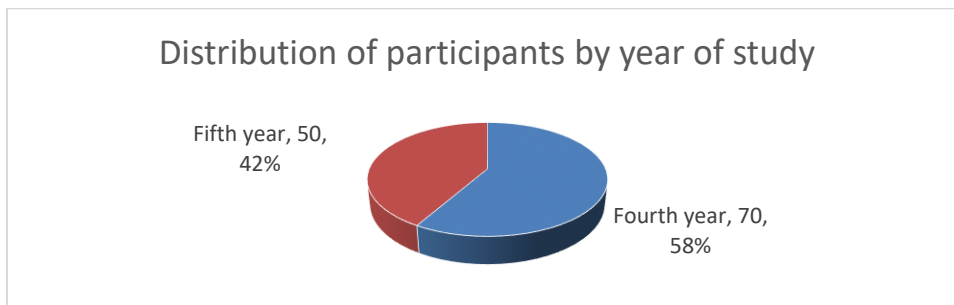
CHAPTER FOUR: RESULTS

4.1 Demographic characteristics

A total of 120 students doing MBChB were interviewed; 81 males and 39 females. 50 students were in their final year (fifth year) whereas 70 were in their fourth year of study. 105 students were renting outside the hostel while only 15 were renting in the school hostel. 98 students were unmarried while 22 were married. 50 students came from families earning more than 1,000,000/- per month, 47 from families earning 500,000/- to 1,000,000- per month and 23 from families earning less than 500,000/- per month.

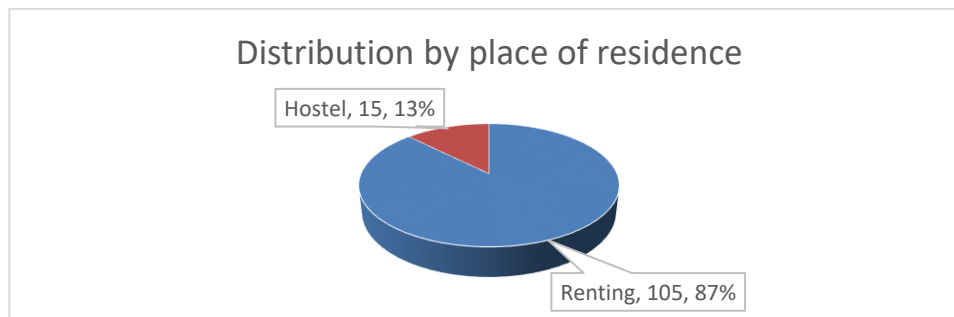
4.1.1 Year of study

Figure 1: Distribution of participants by Year of study (N=120)



42% (50) of the participants were in their final year (fifth year) whereas 58% (70) were in their fourth year of study.

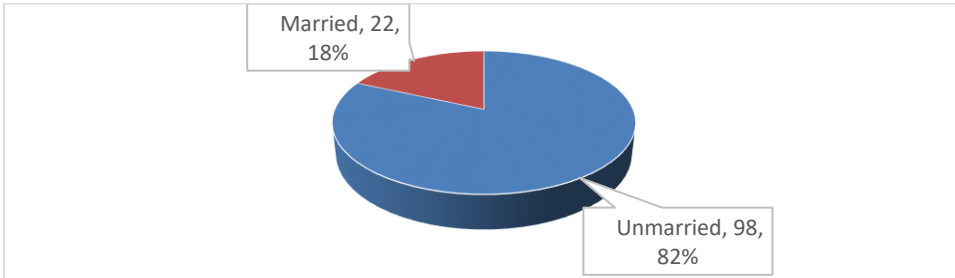
4.1.2 Distribution of the study participants by place of residence



Most of the participants 105 (87%) rented outside the hostel, while the remaining students 15(13%) were living in the school hostel.

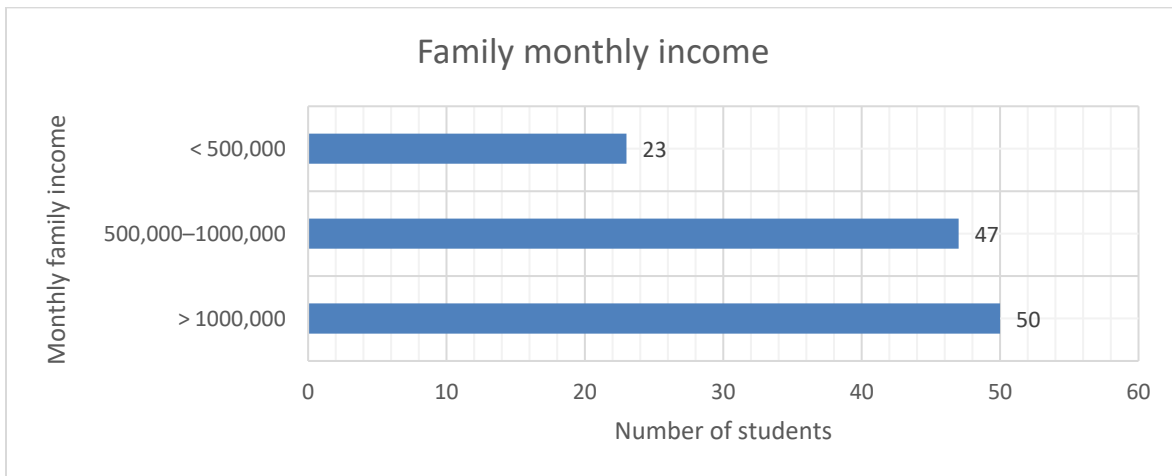
4.1.3. Distribution of the participants by marital status

Figure 2: Distribution of the participants by marital status



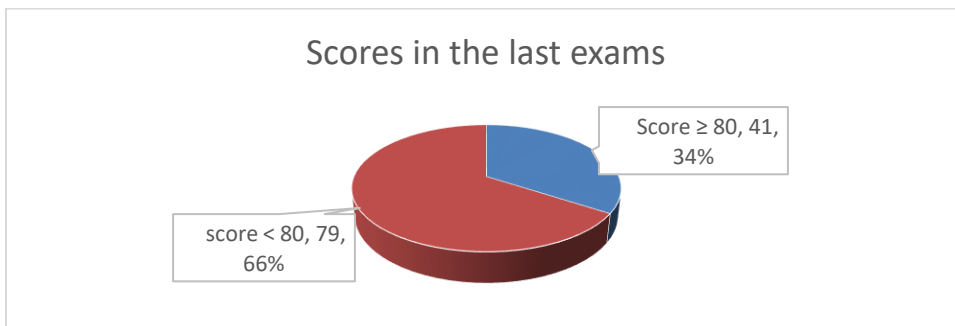
98 (82%) were unmarried of the study participants while 22 (18%) of the participants were married.

4.1.4. Family monthly income



41.7% (50) of the students came from financially stable families with monthly income of >1,000,000/- , 39.1% (47) with monthly income of 500,000 – 1,000,000/- and 19.2% (23) coming from families with monthly income below 500,000/-.

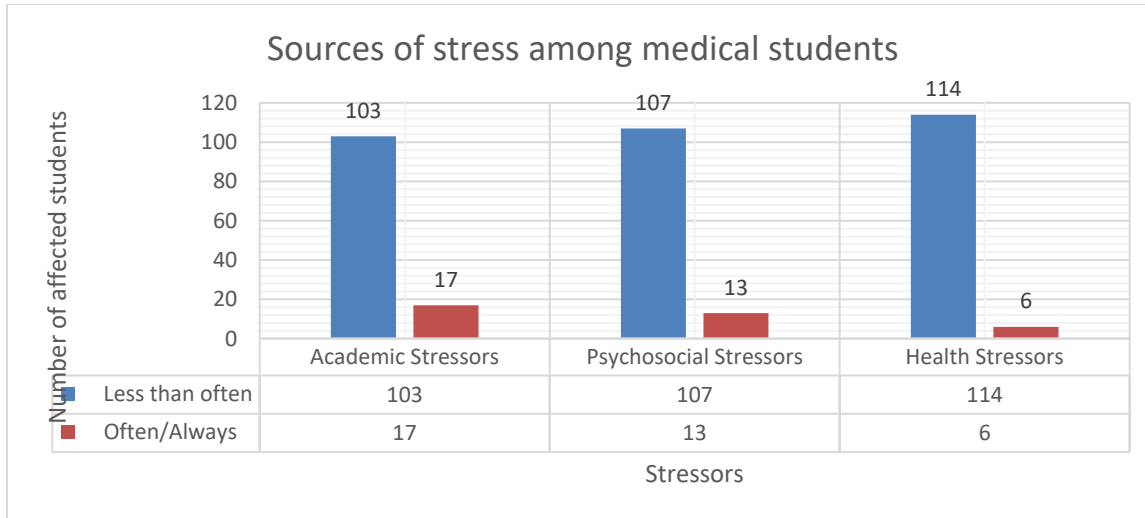
Figure 3: Scores in the last exam



Of the participants, 66% (79) failed to score an A (>80%) in their last exams with 34% (41) students managing to score >80% in their last exams.

4.2 Occurrence of stress among medical students

Figure 6: Occurrence of Stressors in medical students (N = 120)



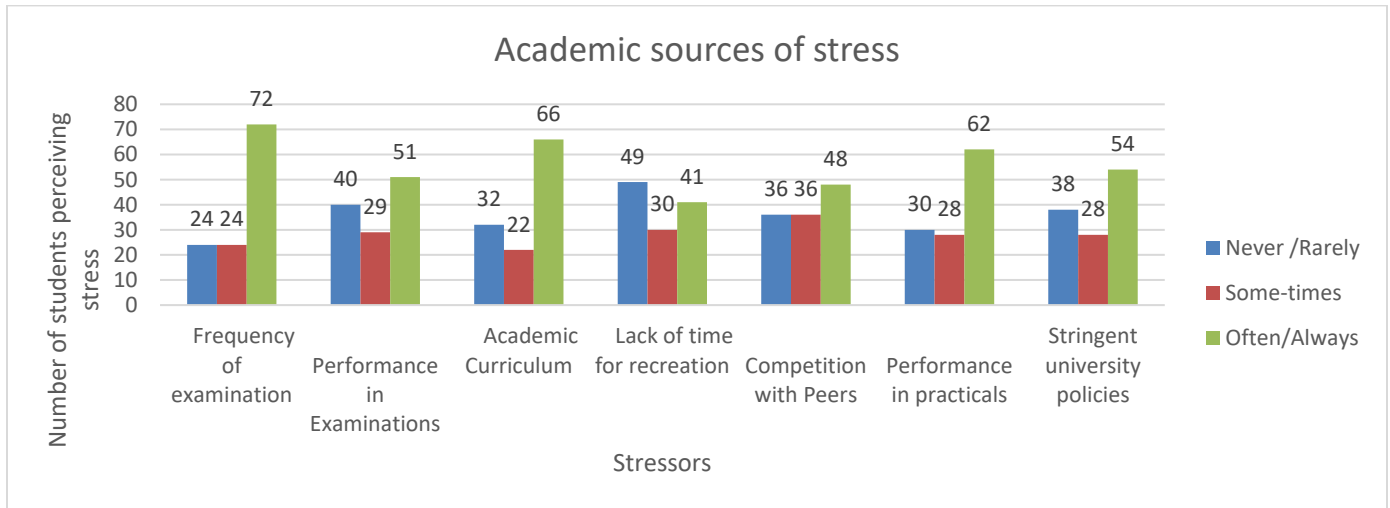
All 120 students reported being stressed at one point or another ranking it as less than often and often/always.

Majority of the students reported health related stressors to be less than often and yet affected a large number of students 95.0% (114).

Of the 120 participants, academic stressors was the most occurring with 14.2% (17) of participants reporting to have experienced stress often and always, followed by psychosocial 10.8% (13) and health stressors 5.0% (6).

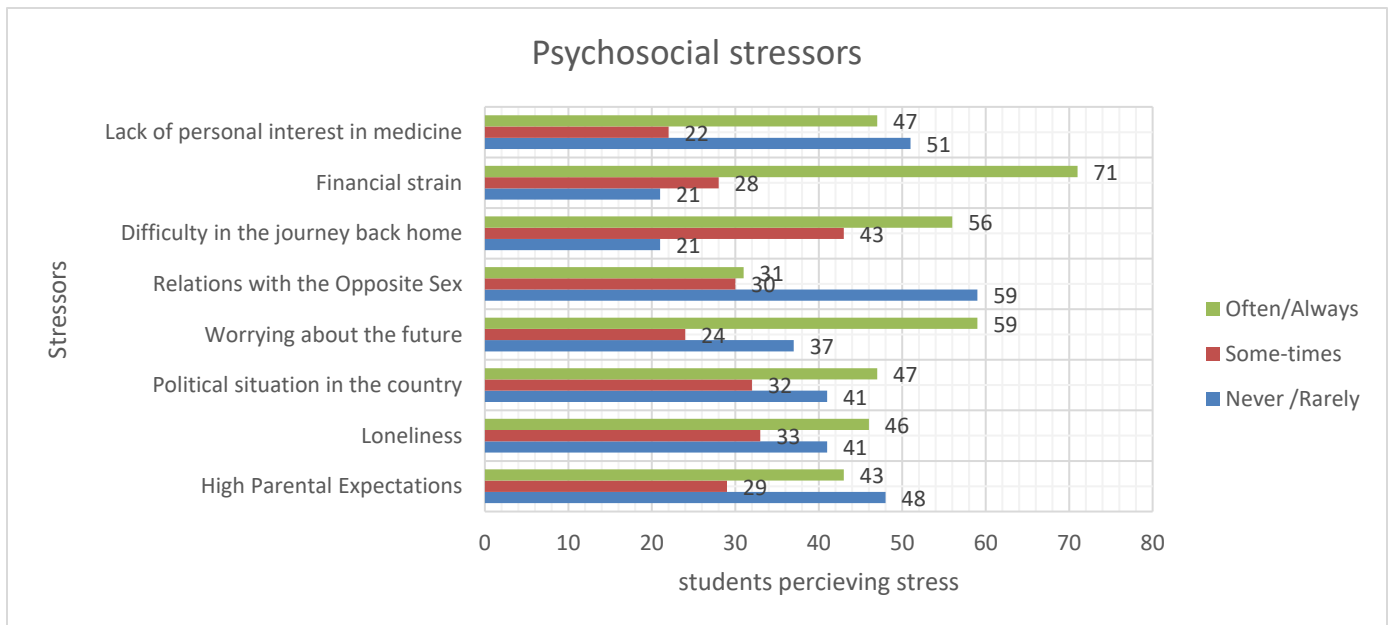
4.3 Occurrence of stress among medical students

4.3.1 Academic stressors



Students reported being stressed often/always by the frequency of examinations 60%(72), average performance in exams 42.5%(51), wide academic curriculum 55%(66), lack of time for recreation 34.2%(41), competition with peers 40%(48), performance in practical examinations 51.7%(62) and stringent university rules 45% (54).

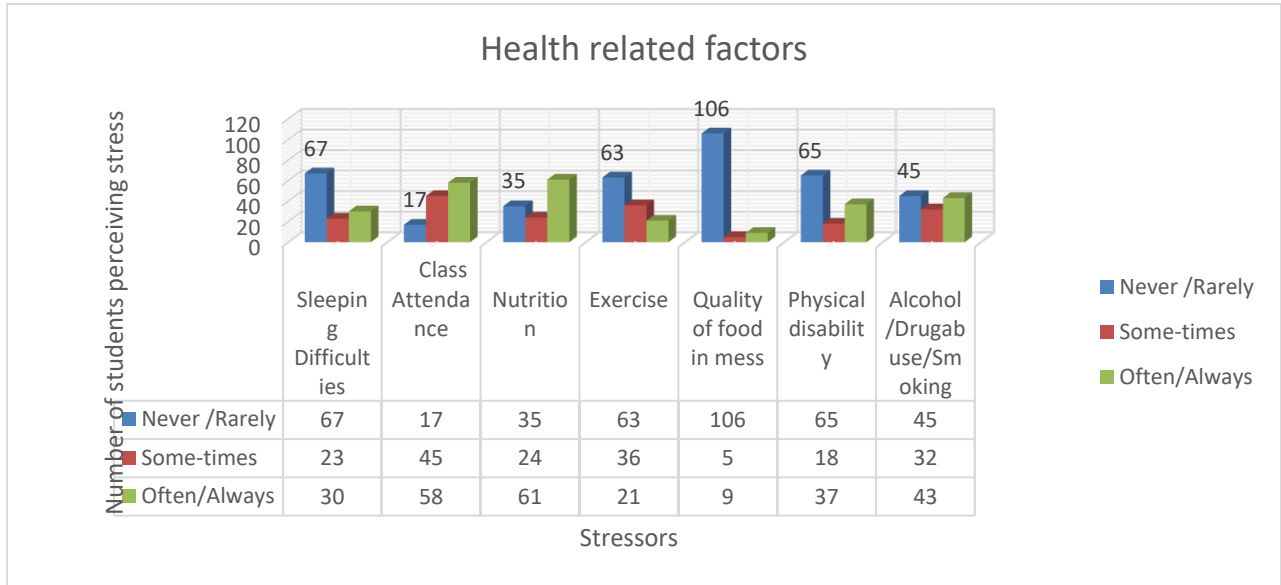
4.3.2 Psychosocial stressors



Psychosocial stressors that were report to cause stress to the students often/always were; financial strain 59.2% (71), worrying about the future 49.2% (59), difficulty in the journey back home 46.7%

(56), lack of personal interest in medicine 39.2% (47), political situation of the country 39.2% (47) i.e., dictatorship with no change of government since 1986, loneliness 38.3% (46) and high parental expectations 35.8% (43).

4.3.3 Health related stressor



The major stressing health issues were; nutrition 50.8% (61), missing classes 48.3% (58), alcohol/drug abuse/smoking 35.8% (43), physical disability 30.8% (37), sleep disturbance 25% (30), lacking exercise 17.5% (21) and few food varieties in Kiryandongo 7.5% (9).

CHAPTER FIVE:

5.1 Discussion

A total of 120 medical students doing Bachelors of medicine and Bachelors of surgery were interviewed. 50 students were in their final year (fifth year) whereas 70 were in their fourth year of study. 105 students were renting outside the hostel while only 15 were renting in the school hostel. 98 students were unmarried while 22 were married. 50 students came from families earning more than 1,000,000/- per month, 47 from families earning 500,000/- to 1,000,000- per month and 23 from families earning less than 500,000/- per month.

In this study more than half (60.8%) of the participants were stressed. Our results show that stress prevalence among medical students in KIUWC is high. This is similar to studies from Pakistan (Waqas et al, 2015), Southern Sudan (Mohamed et al, 2016) and Saudi Arabia (Wafaa et al, 2017).

Among study participants, the mean PSS score for students with frequent/always occurrence of psychosocial stressors was higher as compared to mean PSS score for those students with less than a frequent occurrence of stressors. Moreover, those students that were more stressed had lower marks in the last exam (< 80%) as compared to students with less stress who had higher marks ($\geq 80\%$). However, our study could not find significant differences in mean PSS scores between preclinical and clinical students, married and unmarried students, day scholar and boarding and residence in urban and rural areas.

Our results are similar to Wagas et al.'s (2015); a study conducted in Pakistan stated that students failing in their exams had high-stress levels.

In the current study, academic stressors were more common among our participants. These results are in concordance with a few other studies (Zohair et al, 2018). In contrast to our results, a study reported that in addition to educational demands social and physical factors were major reasons for the psychological disturbance among students (Leta et al, 2015).

Reasons for the dissimilarity of our study results to other studies could include the fact that both male and female participants were included in our study, cultural variances, the difference in the

educational environments, type of instrument used for measuring stress, the difference in the population characteristics. Moreover, our college is a private university and newly established.

5.2 Conclusion:

Perceived Stress among medical students is prevalent and significantly associated with the academic stressors specifically frequency of exams, performance in exams and stringent university policies relating to class attendance. Implementation of coping programs is necessary.

5.3 Recommendations:

There is need to strengthen peer mentorship among students so that those who have been through the system can guide the new entrants on how to manoeuvre through the system.

Further studies should be done to assess aspects of curriculum to identify which ones specifically stress students so as to guide appropriate consideration in curriculum reviews

Further studies should follow-up students to analyze the effect of stress on various aspects of students.

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APPENDICES

APPENDIX I: CONSENT FORM

November 2018

Title of Research Project: Prevalence and factors associated with perceived stress among KIU medical students at Kiryandongo Satellite Centre.

This study has been described to me in language that I understand and I freely and voluntarily agree to participate. I understand that my identity will not be disclosed and the consent I am going to give was kept confidential. I may choose to withdraw or not answer specific questions in this study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name _____

Signature _____ Date _____

Interviewer's name _____

Signature _____ Date _____

APPENDIX II: DATA COLLECTION TOOL

A questionnaire on evaluation of the *Prevalence and factors associated with perceived stress among KIU medical students at Kiryandongo Satellite Centre.*

Interview Section

ID _____ Start Time (hh/mm) _____

Date (DD/MM/YY) ____/____/____

Section A: Demographic Information

1. What is your age? _____

2. If educated (under/post/graduate), do/did you study a biological/health related courses?

1. Yes
0. No

3. What is your marital status?

1. Single/ unmarried
2. Married
3. Divorced
4. Widowed

4. What is your religion?

1. Hindu
2. Muslim
3. Christian
4. Others Please specify _____

Socio-economic status

Instructions: Please answer the following questions regarding socio-economic conditions of your family

5. What is your current employment status?

1. Employed, please specify
2. Unemployed

6. What is your family monthly income?

1. Below 500,000 UGX
2. 500,000 to 1000,000 UGX
3. above 1000,000 UGX

7. Where are you living?

- A. Renting
- B. Hostel

Perceived stress test

P a r a m e t e r s	Almost	Fairly		Very	
	Never	Never	Sometimes	Often	Often
	1	2	3	4	5
1. In the last month, how often have you been					
2. In the last month, how often have you felt t	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In the last month, how often have you felt r					
4. In the last month, how often have you dealt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. In the last month, how often have you felt t					
6. In the last month, how often have you felt c	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. In the last month, how often have you felt t					
8. In the last month, how often have you foun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. In the last month, how often have you been					
10. In the last month, how often have you felt t					
11. In the last month, how often have you been	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. In the last month, how often have you foun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. In the last month, how often have you been	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>
14. In the last month, how often have you felt c	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX III: MAP OF STUDY AREA (Map of Uganda showing Kiryandongo district)



Kiryandongo



APPENDIX IV: PROPOSED BUDGET

<i>R e s e a r c h I t e m</i>	Quantity	Unit cost (U g x)	T o t a l (U g x)
<i>Research assistants (Data collection and entry)</i>	2	1 0 0 , 0 0 0	2 0 0 , 0 0 0
<i>S t a t i o n a r y</i>	1	-	4 5 , 0 0 0
<i>C o m m u n i c a t i o n</i>	2	1 0 , 0 0 0	2 0 , 0 0 0
<i>Data analysis and report writing</i>	1	1 0 0 , 0 0 0	1 0 0 , 0 0 0
<i>B i n d i n g</i>	4	2 , 0 0 0	4 , 0 0 0
<i>R e f r e s h m e n t s</i>	2 0	2 , 0 0 0	4 0 , 0 0 0
T o t a l	-	-	4 0 9 , 0 0 0

APPENDIX V: WORK PLAN

T i m e →	JANUARY	FEBRUARY	JANUARY	FEBRUARY
A c t i v i t y ↓	2 0 1 9	2 0 1 9	2 0 1 9	2 0 1 9
Preparation of proposal				
Approval of proposal				
Data collection				
Data analysis				
Report writing				
Submission of report				