Stress, sleep quality and academic performance of students of Makerere University

By

Nabiwemba Sauya

19/U/6316/PS

A dissertation submitted to the department of educational social and organizational psychology in partial fulfillment of the requirements for the award of Bachelor of Industrial and organizational psychology degree of Makerere University

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## Declaration

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I Nabiwemba Sauya hereby declare that this is my owñ work and that it has never been submitted to any institution for any award. I take full responsibility for any errors, mistakes and omissions that may appear in this work

Signature
 Date....28ih! 10 . 2.2 .2 .2.

Name: Nabiwemba Sauya.

## Approval

This research proposal titled "Stress sleep quality and academic performance of students of Makerere University" has been written under my supervision and is now ready for submission to the schoof of psychology with my due approval.


Mr. Magala Dan

Supervisor.

## Dedication

I dedicate this work to my family members; dad, mum and my sister who have instilled in me a passion to learn, and provided continuous encouragement along the way and those people who are curious to get information about the topic of the study and I hope this will provide the with the required information.

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I would like to thank the Almighty God who has been my provider, protector and has seen me throughout my life in school. I would also like to extend my gratitude and special thanks to my dad Mr. Semuwemba Ismael, my mum Mrs. Namulondo Ramulatu and my sister Miss.Nambuma Shamilah for their financial and moral support towards my academics. I also take this opportunity to deliver my sincere appreciation to my university supervisor Mr. Magala Dan for his commitment, academic guidance, dedication and supervision throughout my proposal writing period. I would like to thank my friends who have contributed greatly to my proposal writing. I pray that God greatly rewards them all.

## Table of Contents

Declaration ..... i
Approval ..... ii
Dedication ..... iii
Acknowledgement ..... iv
Table of Contents ..... v
List of Figures ..... viii
List of Tables ..... ix
Abstract ..... x
Chapter One: Introduction ..... 1
Background ..... 1
Problem ..... 3
Purpose ..... 4
Objectives ..... 4
Scope ..... 4
Significance ..... 4
Conceptual Framework ..... 5
Chapter Two: Literature Review ..... 6
Introduction ..... 6
Stress and Academic performance ..... 6
Sleep quality and Academic performance ..... 10
Stress and Sleep quality ..... 13
Conclusion ..... 15
Research Hypotheses ..... 15
Chapter Three: Methodology ..... 16
Introduction ..... 16
Research design ..... 16
Area of the study ..... 16
Population of the study ..... 16
Sample size determination ..... 16
Sampling strategy ..... 17
Instruments and Measures ..... 17
Procedure ..... 18
Quality control ..... 18
Ethical considerations ..... 19
Data Analysis ..... 19
Problems/limitations ..... 19
Chapter Four: Results ..... 21
Introduction ..... 21
Respondent's background information. ..... 21
Stress among university students ..... 22
Sleep quality among university students ..... 23
Academic performance among university students ..... 24
Inferential statistics ..... 25
Multiple Regression analysis ..... 28
Chapter Five: Discussion, Conclusion and Recommendations ..... 29
Introduction ..... 29
Discussion ..... 29
Stress and Sleep quality ..... 29
Stress and Academic performance ..... 30
Sleep quality and Academic performance ..... 31
Conclusion ..... 33
Areas for future research ..... 33
References ..... 35
Appendices ..... 44
Appendix 1: ..... 44
Questionnaire ..... 44
Appendix 2: ..... 48
Timeframe ..... 48
Appendix 3: ..... 49
Budget ..... 49

## List of Figures

Figure 1: Conceptual framework of the correlation of stress, sleep quality and academic performance among students of Makerere University .5

## List of Tables

Table 1: Respondents’ Demographics ..... 21
Table 2: Student's rating of stress ..... 22
Table 3: Student's rating of sleep quality ..... 23
Table 4: Student's rating of Academic Performance ..... 24
Table 5: Pearson correlation coefficient for stress and sleep quality ..... 25
Table 6:Pearson correlation coefficient for Stress and Academic Performance ..... 26
Table 7: Pearson correlation between academic performance and sleep quality ..... 27
Table 8: Multiple Regression Analysis for Social media use, values and behavior among
Makerere university students ..... 28


#### Abstract

The study investigated the relationship between stress, sleep quality and performance among students of Makerere University. The study had the following objectives; to examine the relationship between stress and academic performance, sleep quality and academic performance and finally to examine the relationship between stress and sleep quality. A correlational study design was used in the study to establish the relationship between stress, using Statistical Package for social scientists. In conclusion the study found a negative relationship between stress and sleep quality, also the study has shown that negative relationship between stress and academic performance which shows that stress affects academic performance since an increase in stress leads to a decrease in academic performance. Lastly the study also found a negative relationship between stress academic performance and sleep quality.


## Chapter One

## Introduction

## Background

Stress is a feeling of emotional or physical tension. It can come from any event or thought that makes you feel frustrated angry or nervous. There are two types of stress; Acute stress; this is a short-term stress that goes away quickly' Chronic stress. This is stress that lasts for a longer period of time. Evidence for stress in university students abounds for many reasons (Safhi et al., 2020; Saleh et al., 2017). One of the outcomes of stress is poor sleep quality. Sleep plays a very important role in our physiological and neurocognitive functioning, and these abilities are important for university students to excel academically (Gikunda et al., 2014). The increasing demands of a university education often result in irregular sleep schedules and a higher risk of sleep disorders (Chokroverty, 2009; Taylor \& Bramoweth, 2010). Prior work has suggested that changes in stress level result in changes in sleep quality (Hamilton et al., 2007; Lund et al., 2010). For instance, Lemma et al. (2012) found that students who experienced stress were more likely to complain about having poor sleep quality.

Sleep quality is assessed by a combination of several sleep parameters, such as sleep duration, feeling rested upon waking, and sleep efficiency, the investigation of the relationship between stress and sleep quality does not reveal much about the different aspects of sleep quality that are affected by stress (Diekelmann and Born,2010). Sleep reactivity is the trait like degree to which stress exposure disrupts sleep resulting in difficulty falling and staying asleep. Individuals with higher reactive sleep systems experience drastic deterioration of sleep when stressed whereas those with low sleep reactivity proceed largely unperturbed during stress (Yoo et al., 2007). Research shows that genetics familial history of insomnia female gender and
environmental stress influence how the sleep system responds to stress. Wolfson and Carskadon, (2003) identified neurobiological underpinnings for sleep reactivity involving disrupted cortical networks and deregulations in the autonomic nervous system and hypothalamic pituitary adrenal axis. Sleep reactivity is most pathologically and clinically pertinent when in excess such that high sleep reactivity predicts risk for future insomnia disorder with early evidence suggesting high sleep reactivity corresponds to severe insomnia phenotypes (Yoo et al., 2007). Hall et al., (2000) found that high sleep reactivity is also linked to risk of shift work disorder depression and anxiety. Importantly, stress related worry and rumination may exploit sensitive sleep systems thereby augmenting the pathogenicity of sleep reactivity (Diekelmann and Born,2010).

Academic performance is the outcome of student's effort in examinations. Students' academic performance is determined by a number of factors (Eze et al.2016). Academic performance is measured by the average marks of the previous semesters and the total average marks. The determining factors of student's performance have attracted the attention of academic researchers from many areas. They have tried to determine which variables impact students' performance in positive and negative direction students (Siraj et al., 2014). Unfortunately, many students are unaware that poor sleep quality could lead to reduced academic performance (Engle-Friedman et al., 2003; Pilcher \& Walters, 1997). Diekelmann and Born (2010) asserted that sleep plays an important role in the learning process and memory consolidation (Beebe, 2011; Louca \& Short, 2014; Stickgold, 2005). The effects of poor sleep on cognitive functioning may explain the association between sleep quality and academic performance (Dixit et al., 2012). There are inconsistent findings about the components of sleep quality that have been associated with academic performance. For example, using the Pittsburgh Sleep Quality Index (PSQI), Cates et al. (2015) examined the different aspects of sleep quality on academic performance among pharmacy students, and they found that only
sleep efficiency (i.e., the proportion of sleep time to the amount of time spent in bed attempting to sleep) and the use of sleeping medication were important predictors of academic performance. However, when Mirghani et al. (2015) studied medical students, they found that all components of the PSQI, except for sleep latency (i.e., the amount of time after lights off before sleep begins), were associated with academic performance. It appears that more research on the relationship between sleep quality and academic performance is needed, especially on the different aspects of sleep quality. Clearly, stress generates burdens on students in problemsolving ability, health, self-efficacy, and academic success, which subsequently affects their academic performance (Largo-Wight et al., 2005; Zajacova et al., 2005). However, the relationship between stress, sleep, and academic performance is inconclusive. Several studies have found no relationship between sleep and academic performance (Eliasson et al., 2002; Smart, 2019). Likewise, Rafidah et al. (2009) reported no relationship between stress and academic performance at the beginning and the middle of the school semester.

## Problem

Stress is on the rise among students and it can be brought about by starting University, exams, coursework deadlines and thinking about the future (KJ Reddy, 2018). Despite the evidence on side effects of stress, there is not enough empirical data to dissect and analyze the issue as it hinders academic performance. Therefore, more empirical data are needed so as professionals can better understand Stress and use what they learn about the topic to develop managerial and administrative alternatives and strategies to foster issues concerning sleep quality which can promote better academic performance from students. Thus this research is a call to action for administrators and supervisors and every level at the university to provide practical guidance on how to address the barriers towards the quality of students' academic performance.

## Purpose

This study was aimed at examining the relationship between stress, sleep quality and job performance.

## Objectives

The study was guided by the following objectives

1. To determine the relationship between sleep quality and academic performance.
2. To ascertain the correlation of stress and academic performance of students.
3. To establish the relationship between stress and sleep quality among students.

## Scope

Geographically. Makerere University is located on Makerere hill in Kampala district The main Campus is about 5 km to the north of the city center covering an area of 300 Acers.

## Significance

This section provides the significance of the study which covers Makerere students

The study added to the existing literature on stress quality and academic performance in the university

The significance of the study created knowledge and provide more information to future researchers.

The study may add to the body of knowledge and will contribute in addressing the gap in literature regarding on the impact of stress sleep quality and academic performance.

The research may inform the negative effects of stress in the university and some of the negative effects of stress.

## Conceptual Framework



Figure 1: Conceptual framework of the correlation of stress, sleep quality and academic performance among students of Makerere University.

The Conceptual framework shows that when students have academic stress it directly affects their sleep and academic performance. The framework also shows that the academic stress affects the academic performance of students negatively or positively.

## Chapter Two

## Literature Review

## Introduction

This chapter presents literature related to stress sleep quality and academic performance of students and how they are related.

## Stress and Academic performance

Academic performance is affected by several factors, whether Internal or external (Bello \& Gumarao, 2016). Stress is one of the factors that affect the academic performance of students.Stress is a major source of problems that students face during their university education when they are struggling to achieve academic outcomes for their future life (Lee \& Graham, 2001). Academic pressure is one of the factors that causes students to fail. Sharma, Parasar and Mahto (2017) define stress as the mental response and action by hormonal signaling, the perception of danger triggers an automatic response system, known as response to fight or flee. Generally, stress refers to two things, the psychological perception of pressure, on the one hand, and the body's response to it, on the other, which involves multiple systems, from muscle breakdown to memory. Stress demands high expectations of oneself, which causes a feeling of tension and pressure.

Certain tensions set us in motion and are good for us without any tension. Many say that our lives would be boring and possibly meaningless (Wilson, 2007). However, when stress undermines our psychological and physical health, it is bad. Students are subject to different types of stressors, such as pressure from academics with the obligation to succeed, an uncertain future and difficulties integrating into the system. Students also face social, emotional, physical and family problems that can affect their ability to learn and their academic performance
(Rogers \& Yassin,2003). Too much stress can cause physical and mental health problems, low student self-esteem, and can also affect students' academic performance (Niemi \& Vainiomaki,1999).

For students currently attending university, however, the process is often stressful and frustrating. According to Cotton, Dollard and DeJonge (2002), competition for grades, the need to perform well, relationships, career choices and many other aspects of the university environment are sources of stress. Before condemning stress outright, we need to understand that stress is only harmful when it is excessive. Much of the stress that we all know is helpful and stimulating. The challenges of life tend to be stressful and an attempt to avoid stress completely would lead to a rather boring existence. The problem arises when you feel too much stress. Although some reactions to stress are part of deeper and more serious emotional problems, many are not and can be treated with relatively simple counselling and stress management techniques.

This study focuses more on the harm than good stress does to students in relation to their academic performance at school. It is common for students, individually or in groups, to interact with their environment, these experiences in one way or another affect their academic performance (Chemers, Hu \& Garcia 2001). Stress has generated a lot of interest in recent years. It has been of great concern to members of the academic world and other researchers. For most people, stress is bad and should be avoided, but this position is not always true. Stress must be managed, not simply avoided. stress is defined in terms of conditions necessary for it in the following way: it is a potential for stress when it is perceived that the environmental situation presents a demand which threatens to exceed capacities of the person. The same is true of the harmful effects on their wellbeing, their health and even the care of their students. Some negative effects of stress are increased absenteeism, heart disease, late classes and poor
health. Stress can have both positive and negative consequences for the individual. Optimal stress can lead to maximum efficiency, create satisfaction, a feeling of well-being and accomplishment, and another reward for success (Mensah, Fosu, \& Oteng, 2017).

On the other hand, excessive stress at school can lead to loss of appetite for reading, poor performance and reduced mental and physical health. Stress is caused by certain factors (stressors) that exist inside and outside the school environment (Zautra, 2006). These stressors can be identified as intra-individual, inter-individual, institutional and extra institutional stressors. Gibson, Ivancevich and Donnelly (1995) defined stress as an adaptive response mediated by individual differences and psychological processes, which is a consequence of any external physical (environmental) action, reque(Chemers, Hu \& Garcia 2001(Mensah, Fosu, \& Oteng, 2017). (Zautra, 2006).Gibson, Ivancevich and Donnelly (1995) or action. However, some common factors have been identified as sources of related academic stress.

Some of these factors include conference 4 overload, long conference hours, poor time management, student financial difficulties and many more. Students' academic performance is a key characteristic of education (Rono 2013). It is considered to be the center around which the entire education system evolves. Some factors influencing high academic achievement include daily hours of study, parents' economic status and good learning facilities (Singh, Malik \& Singh (2016). Students face challenges in their studies due to the ineffective use of these factors to improve academic performance. In this sense, this study seeks to discover the negative impact of stress on student achievement, the relationship between school stress and students' achievement, and finally, to recommend strategies for managing stress at the University of Cape Coast School of Business, the reason being that complex results on how academic stress relates to students' performance can be provided effectively.

Stress happens when the person has a burden that exceeds his or her available assets. If the stress is severe and prolonged, it can reduce academic performance, impede the ability of a student to become involved and contribute to campus life, and increase the likelihood of abuse of substances and other potentially destructive behaviors (Richling, Klonsky \& Hoe 2003). Research by Vermont and Steensma, (2005) defines stress as the perception of the incongruity between the environmental burden (stressors) and a person's ability to fulfill them. Researchers typically describe stress as the unpleasant reaction people experience under intense pressure or some other form of strain imposed upon them. Stress occurs when a person faces a situation he recognizes as irresistible and cannot cope with (Khan, Altaf, \& Kuasa, 2013).

Students are subjected to stress (Smith, Johal, Wadsworth, Smith \& Peters 2000) in an advanced educational organization like the University, where the burden imposed on students is based on the time limit and the difficulty of standing out in tests or exams. Research has identified stress symptoms, such as energy loss, high blood pressure, depressed mood, increased desire, focus trouble, impatience, nervousness, and anxiety (Agolli \& Onigiri, 2009). The Person-Environment model is a valuable model for understanding stress in university students (Misran \& McKean, 2000). This model suggests people might view stressful events as demanding or frightening. Perception of educational goals as a challenge creates stress and this stress, in turn, creates a sense of competence and an enhanced learning capacity (Khan et al, 2013). The perception of education as a threat, however, brings with it a sense of hopelessness and a worrying sense of loss, leading to a drop in school results. Stress is considered a part of student life and can influence student coping strategies according to university life demands. Academic work is actually always done with stressful activities (Agolli et al., 2009).

The relationship between emotional intelligence, perceived stress, and academic performance and associated factors was explored in a study by Ranasinghe et al.(2017).The study results showed that the higher emotional intelligence was associated with better academic performance among final year students. Higher emotional intelligence was also associated with a high level of self-satisfaction. Meanwhile, self-perceived stress was low in those with high emotional intelligence. The study also recommended that enhancing emotional intelligence may help reducing stress levels and improve academic performance

## Sleep quality and Academic performance

The academic performance of students impacts their future educational attainment and health and therefore emerged as a good health concern. Generally, as levels of education increase, there is increase in income and social status. Many findings in recent years point toward the importance of sleep for memory consolidation: Sleep seems to stabilize as well as enhance a wide variety of memory contents (Diekelmann and Born,2010). Not only the consolidation of memories, also the encoding itself is negatively influenced by sleep deprivation (Van Der Werfet al., 2009; Yoo et al., 2007; Van Der Werf et al., 2011). Furthermore, sleep inspires insight into hidden rules and facilitates generalization of knowledge (Ellenbogen et al., 2007; Gómez et al.,2006; Wagner et al., 2004).

All these cognitive competences are of great importance during higher education, often considered the most demanding and challenging learning period in many people's life. Especially medical students are expected to retain a large amount of complex factual knowledge in a comparably short time period.

Many studies strongly suggest that timing of sleep as well as its quality and quantity are linked with students' learning abilities and academic achievement and that students are often chronically sleep deprived (Curcio et al., 2006; Wolfson and Carskadon, 2003). Studies have
indicated that over $60 \%$ of college students were poor quality sleepers, resulting in daytime sleepiness and an increase of physical and psychological health problems (Lund et al., 2010; Sing and Wong, 2010). Another study investigating medical-students could not only show significant sleep disturbances, these problems were also related to depressive symptoms (Eller et al., 2006). Beebe et al. (2010) restricted sleep in a simulated classroom, which led to lower quiz scores, more inattentive behaviors and lower arousal. Due to an impressive workload sleep disturbances seem especially prevalent in medical students and residents (Nojomi et al., 2009), an alarming fact considering the clinical responsibilities of these populations. People working in medical fields also often suffer from large amounts of stress; and stress and sleep have long time been known to co-enact with each other (Friedman et al., 1995; Hall et al., 2000; Kachikis and Breitkopf, 2012; Morin et al., 2003; Van Reeth et al., 2000; Kashani et al., 2011). Acute and chronic stressors have pronounced effects on sleep architecture and circadian rhythms and sleep deprivation is a stressor (VanReeth et al., 2000). Both sleep and stress are closely linked to thehypothalamo-pituitary-adrenal (HPA) axis, which explains the close interrelationship between these two factors (Steiger, 2003; Van Reeth et al., 2000).

Sleep plays a vital role in maintaining good health throughout the lifespan of a person. Several studies strongly recommend that time of going to sleep and both sleep quality and quantity are connected with students' learning abilities and academic success. Moreover, the results of different studies depicted that more than 60 percent of college students' sleep quality was poor, which is the outcome of daytime sleepiness; also, these studies observed an increasing trend in both physical and mental health problems (Steiger, 2003). In addition, restricted sleep in a simulated classroom led to lower exam scores, more distracted behaviours, and lower encouragement (VanReeth et al., 2000). Eller et al. stated that the significant sleep disturbances were observed among the medical students, which were related to depressive symptoms (Steiger, 2003). Sleep disturbance seems to be prevalent in medical students due to
a notable workload and residence (Sing and Wong, 2010) that is an alarming fact for considering the clinical responsibilities of the population of a country.

Sleep difficulties are the most frequent health illnesses among adults, with chronic insomnia being the most severe. Approximately, a quarter of individuals believe that the quality of their sleep is not good, and even self-reported sleep difficulties are underestimated. The population therefore requires an upgraded system for the diagnosis and treatment of sleep (Kelly et al. 2001)). Good sleep quality is considered necessary in order to generate precise work during the wakefulness period and, consequently, to gain a better life.

The study reports in the literature indicate that sleep patterns explain the greatest variance in the students' cumulative weighted average. Kelly et al. (2001) "classified sleep habits into three categories: Short sleepers: individuals who, when left on their own schedule, have slept six hours or less. Average sleepers: individuals who sleep seven or eight hours. Long sleepers: people who sleep nine hours or more over twenty-four hours. The study found that people who were considered to be sleeping long reported higher GPAs. Indeed, people who sleep fewer hours at night may suffer from psychological maladjustment and this increases their anxiety and stress, which has been associated with poorer academic performance. These factors cause problems for students, such as a reduction in attention span and an increase in the number of errors students make in tests.

Students having poor academic performance suffer from the problems related to sleep quality and require medical advice for maintaining a healthier lifestyle including adequate rest time. Assessment of sleep quality may also be incorporated in annual student health checks as a holistic approach. This study also suggests that the university healthcare service providers should attempt to enhance students' awareness of sleep health and promote individuals' willingness by highlighting behaviours associated with enhancing sleep.

## Stress and Sleep quality

Sleep is a basic human needed. Abraham Maslow showed that sleep as part of your physiological needs in the hierarchy of five basic human needs (Lohitashwa,2020). According to Stores, sleep categorized into: satisfactory and unsatisfactory. Good sleep is sleep that has satisfactory (sufficient in duration and good quality), while bad sleep is sleep that makes individuals feel unsatisfactory (Lohitashwa,2020). Unsatisfactory sleep that occurs on an continued that cause more serious effects like; often feel very tired, uncontrolled emotion, difficult to concentrate, difficult to remembering or thinking clearly, unsatisfactory work, depression, and difficult to solve problems (Darnall, \& Suarez, 2009). The long-term effects such as cardiovascular disease, obesity, and cancer. Students including early adult age groups, so they take time to sleep for $7---8$ h per night. 1 But in reality, not all of the students keep their sleep needs optimally. This is because students have a lot of activity and stressors, both academic and non-academic. The condition causes students to have a risk of poor sleep quality. Based on the research by Almojali et al. against 756 medical students of King Saud bin Abdul Aziz University, Saudi Arabia, showed 76\% (575) students had poor sleep quality and 53\% (401) students had stress symptoms (Darnall, \& Suarez, 2009).

The study also supported earlier research by Ahrberg et al. in 2012 among 144 medical students of Ludwig Maximilian University Munich, Germany showed 59\% of respondents had poor sleep quality and lower academic performance is correlated with lower sleep quality and higher stress levels (Bodo, \& Rissman. 2021). Some research showed that the majority of students had poor sleep quality. Sleep as one of the basic human need important to restore stamina and function of the body.

Quality sleep affects mental health. Sleep is not sufficient to cause increased stress hormones, namely cortisol (Ahmed, Banu, Al-Fageer, \& Al-Suwaidi. (2012), and conversely,
high levels of stress can interfere with sleep quality individuals. Poor sleep quality leads to feelings of anxiety, tension, fatigue, decreased intellectual, cognitive disorders, and depression (Redeker, McEnany, 2021). The result of Lemma et al. studied among 2.551 students from Haramaya University and the University of Gondar, Ethiopia showed 55.8\% (1424) had poor sleep quality, $50.8 \%$ (1294) were depressed, $58 \%$ (1369) had anxiety and $34.1 \%$ (864) had stress (Lemma, Gelaye, Berhane, Worku, Williams, 2012) University of Indonesia (UI) consists of three clusters there are Health, Science and Technology, and Social and Humanities cluster. Students of the University of Indonesia who came from three different clusters have different characteristic. Stress experienced by students not only from the academic aspect, but also non-academic. This condition is a contributor to the tendency of students who have poor sleep quality.

Stress and sleep affect each other. Poor sleep can increase stress, otherwise high-stress can also cause sleep disturbances (Lemma, et al (2009), another study showed that changes in sleep in a long time could exacerbate stress conditions that can develop into depression. This study supports previous studies such as Waqas et al. claimed $59.7 \%$ of the students suffered severe stress with $77 \%$ of students have poor sleep quality (Waqas, Khan, Sharif, Khalid, Ali, 2015). Lin . suggest stress has a major contribution and cause poor sleep (Lin, \& Huang 2018). Kotronoulas et al. with the results of the study $65 \%$ of students have stress and $69.9 \%$ experienced sleep quality, and a variety of other studies reveal that stress has an influence in causes poor sleep quality (Waqas, Khan, Sharif, Khalid, Ali, 2015). Thus, the quality of sleep and stress levels become things that must be considered given the research that has been declared poor quality of sleep in college students.

In addition, students also have the task of self-development as an easy adult who is developing the capacity of self through various activities. So that health becomes very
important to note. The results showed that poor sleep quality most widely owned by a grove social humanities have strong relationship with cluster and stress level. Students with poor sleep quality 4.7 times more likely to have higher stress than students who have a good sleep quality. Stress experienced due to poor sleep quality ratings. This research recommend to applied stress management in order to increase sleep quality.

## Conclusion

From the literature review above the relationship among the three variables of stress, sleep quality and academic performance, there is a significant relationship between the three variables.

## Research Hypotheses

After review of the existing literature the following are the hypotheses that have been generated

- There is significant relationship between stress and sleep quality.
- Stress is significantly related to academic performance of students.
- Sleep quality does not significantly influence academic performance of students.


## Chapter Three

## Methodology

## Introduction

This chapter discusses the research design, population, sample size, and sampling techniques. It further examines the measuring instruments to be used, quality control, and procedure and data management analysis.

## Research design

A correlation research design was adopted for this study to establish the extent and strength of the relationship which exists between stress, sleep quality and academic performance of Makerere university students. Correlation were used because it is evidence of causation and it allows one to make cause and effect statement. This will be done using a cross sectional design.

## Area of the study

The research was conducted in Makerere University.

## Population of the study

The study was carried on among the 180 students of bachelors of industrial and organizational psychology year three.

## Sample size determination

a. Makerere University Students
b. Simple random sampling

The total population represented by letter N (180) will be used to check the corresponding minimum sample size represented by letter (s) using the formula by Krejcie and Morgan's (1970). $\mathrm{s}=\chi 2 \mathrm{NP}(1-\mathrm{P}) / \mathrm{d} 2(\mathrm{~N}-1)+\chi 2 \mathrm{P}(1-\mathrm{P})$.

Where $\mathrm{s}=$ required sample size. $21 \chi 2=$ the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841). $\mathrm{N}=$ the population size. $\mathrm{P}=$ the population proportion (assumed to be .50 since this would provide the maximum sample size).
$\mathrm{d}=$ the degree of accuracy expressed as a proportion (.05).
$\mathrm{S}=s=\frac{3.841 \times 180 \times 0.5(1-0.5)}{0.05^{2}(180-1)+3.841 \times 0.5(1-0.5)}$
$s=\frac{172.845}{1.40775}$
$\mathrm{S}=122.781$
$\mathrm{S}=123$ respondents

The sample size for respondents was 123 students

## Sampling strategy

Both simple random sampling and purposive sampling techniques will be used in the selection of the respondents

## Instruments and Measures

Self-administered questionnaires were designed from the constructs defined above.
Section A measured bio data of the respondent. Section B measured stress, section C measured sleep quality and section D measured academic performance.

The development of the questionnaire included; stress was measured by the using the Perceived Stress Scale which ranges from never to always.

A 28 item Sleep quality scale was used to measure sleep quality with variables being scored on a four likert scale ranging from rarely to almost always.

Academic performance was measured using the academic performance scale which is an 8 item scale which is measured on a five point likert scale where $1=$ Strongly agree, $2=$ Agree, $3=$ Not sure, $4=$ Disagree and $5=$ Strongly disagree. Also to fully test academic performance, I requested the academic registrar to avail to me the CGPA results of students doing Psychology in order to ascertain the check their academic performance.

## Procedure

The researcher got an introductory letter from Makerere University School of Psychology and was presented to the relevant authorities Makerere University. The researcher introduced herself to the respondents, introduce the topic, purpose and objectives of the study. Respondents were directed on how to answer the items on the instrument, issues of confidentiality were clearly be explained to the respondents. Questionnaires were then be distributed and after one hour, they were collected and taken for analysis of data.

## Quality control

## Validity;

The validity of the questionnaire was computed using the content validity index. The questionnaire was constructed within the objectives of the study and it was edited by the research experts to make independent judgment of the items by rating them on the scale as 'very relevant' (1) 'relevant' (2), 'somehow relevant' (3) and 'not relevant' (4).

The ratings was used to compute the content validity index (CVI).

| Using the formula $\quad$ CVI $=\quad$ | Items rated 1 and 2 |
| ---: | :--- |
|  | Total number of items in the questionnaire |

The obtained ratio was used to ascertain if the items measured the parameters they ought to measure.

## Reliability;

The reliability of the questionnaire was established by carrying out a pilot study. The pilot study was carried out in Makerere University and data collected and analyzed to determine whether tool collected data relevant to this study. Using a Cronbach coefficient, the researcher correlated the findings and the accepted reliability of the questionnaire which is established to be correct if it exceeds 0.7 (Amin, 2005).

## Ethical considerations

Participants were briefed about the study and any concerns or questions they had about the research which were answered by the researcher.

The identity of the participants remained anonymous; they were not required to give or use their names in the research. Furthermore, the intention of the study was made clear to them at the very beginning of the study before they started responding to items in the questionnaires.

## Data Analysis

Data from the respondents was coded and analyzed using Statistical Package for Social Scientists (SPSS). Frequency tables were generated to further analyze the respondents' bio data and other information about the variables. Pearson's product correlation coefficient was used to establish the relationship between the study variables

## Problems/limitations

The study was based on self-reports, which increased the likelihood of respondents to be subjected on social desirability bias.

Some participants were not honest with their answers for fear of being identified on the questionnaire. The researcher informed them not to indicate their names so that information is not tracked back to them and also promised confidentiality of their responses so that they answer the questionnaire honestly.

Time and money was another problem while conducting the research in terms of services for example secretarial, photocopying, printing, binding, stationery among others.

Some participants were not filling to fill in or complete the questionnaires. The researcher handled this by clarifying to them how relevant this study was to them prior giving out the questionnaire.

## Chapter Four

## Results

## Introduction

This chapter presents the findings from the data analysis. The data presented includes both the descriptive information about the respondent's demographic characteristics in frequencies and percentages.

## Respondent's background information.

The background information or sample characteristic of the respondents were mainly on sex, and age of respondents.

Table 1:
Respondents' Demographics

| Item | Categories | Frequency | Percent |
| :--- | :--- | :--- | :--- |
| Sex | Male | 54 | 43.9 |
| Age Group | Female | 69 | 56.1 |
|  | $11-20$ | 3 | 2.4 |
| Year of Study | $21-30$ | 120 | 97.6 |
|  | Year one | 0 | 0.0 |
|  | Year two | 0 | 0.0 |
|  | Year three | 123 | 100 |
|  | Year four | 0 | 0.0 |
| Course | Year five | 0 | 0.0 |
|  | BIOP | 3 | 2.4 |

Results in table 1 show that majority of the respondents were female (56.1\%). This shows that respondents who were willing to participate in the study were females. Furthermore, results in table 1 show that the majority of respondents were between $21-30$
years $(97.6 \%)$ implying that the population at School of Psychology is majorly made up of youths in this age bracket. Also only year three students were interviewed which meant that year $1,2,4,5$ had no respondents and $100 \%$. Only BIOP students were interviewed no other student was interviewed from another college or course.

## Stress among university students

The ratings of the students stress levels are presented in the table below.
Table 2:
Student's rating of stress

| Item | Never | Almost <br> never | Some <br> times | Fairly <br> often | Very <br> often |
| :--- | :--- | :--- | :--- | :--- | :--- |
| In the last month, how often have you been <br> upset because of something that happened | 41.5 | 13.8 | 22.8 | 5.7 | 16.3 |
| unexpectedly? |  |  |  |  |  |
| In the last month, how often have you felt that <br> you were unable to control the important <br> things in your life? | 6.5 | 46.3 | 22.0 | 17.9 | 7.3 |
| In the last month, how often have you felt <br> nervous and stressed? | 12.2 | 13.0 | 42.3 | 17.9 | 14.6 |
| In the last month, how often have you felt <br> confident about your ability to handle your | 8.9 | 24.4 | 23.6 | 26.0 | 17.1 |
| personal problems? |  |  |  |  |  |
| In the last month, how often have you felt that <br> things were going your way? | 7.3 | 26.0 | 34.1 | 14.6 | 17.9 |
| In the last month, how often have you found <br> that you could not cope with all the things that | 7.3 | 24.4 | 48.8 | 11.4 | 7.3 |
| you had to do? |  | 23.6 | 31.7 | 21.1 | 16.3 |
| In the last month, how often have you been <br> able to control irritations in your life? <br> In the last month, how often have you felt that <br> you were on top of things? | 7.3 | 11.4 | 22.8 | 28.5 | 18.7 |
| In the last month, how often have you been <br> angered because of things that happened that | 13.0 | 19.5 | 30.1 | 22.8 | 14.6 |
| were outside of your control? |  |  |  |  | 12.7 |
| In the last month, how often have you felt <br> difficulties were piling up so high that you <br> could not overcome them? | 10.6 | 29.3 | 30.9 | 17.1 | 12.2 |

Majority of respondents (41.5\%) revealed that they had never been upset because of something that happened unexpectedly during the last month which shows that the respondents had full control of their emotions. It was further revealed that majority of respondents (67.8) felt that sometimes things were going their way indicating that respondents stress was low as
they had nothing much to worry about. It was also revealed that in the last month (39.9\%), majority of respondents felt that difficulties were piling up so high that they could not overcome them which clearly showed that respondents have challenges causing their stress levels to rise.

## Sleep quality among university students

The ratings of the sleep quality levels among students are presented in the table below.
Table 3:
Student's rating of sleep quality

|  | Rarely | Some times | Often | Almost <br> always |
| :--- | :--- | :--- | :--- | :--- |
| I have difficulty falling asleep. | 48.0 | 30.9 | 17.1 | 4.1 |
| I fall into a deep sleep. | 23.0 | 44.3 | 13.9 | 18.9 |
| I wake up while sleeping. | 32.5 | 37.7 | 20.5 | 9.0 |
| I have difficulty getting back to sleep once I <br> wake up in middle of the night. | 31.7 | 35.8 | 23.6 | 8.9 |
| I wake up easily because of noise. | 32.8 | 26.2 | 27.0 | 13.9 |
| I toss and turn. | 27.6 | 37.4 | 25.2 | 9.8 |
| I never go back to sleep after awakening | 34.1 | 36.6 | 25.2 | 4.1 |
| during sleep. |  |  |  |  |
| I feel refreshed after sleep. | 19.5 | 22.0 | 30.1 | 28.5 |
| I feel unlikely to sleep after sleep. | 23.6 | 39.8 | 27.6 | 8.9 |
| Poor sleep gives me headaches. | 27.6 | 21.1 | 26.8 | 24.4 |
| Poor sleep makes me irritated. | 20.3 | 39.8 | 28.5 | 11.4 |
| I would like to sleep more after waking up. | 38.3 | 25.0 | 28.3 | 8.3 |
| My sleep hours are enough. | 26.0 | 31.7 | 18.7 | 23.6 |
| Poor sleep makes me lose my appetite. | 28.7 | 27.9 | 26.2 | 17.2 |
| Poor sleep makes hard for me to think. | 25.2 | 40.7 | 21.1 | 13.0 |
| 1 feel vigorous after sleep. | 25.2 | 30.9 | 26.8 | 17.1 |
| Poor sleep makes me lose interest in work or | 27.6 | 27.6 | 27.6 | 17.1 |
| others. |  |  |  |  |
| My fatigue is relieved after sleep. | 13.0 | 29.3 | 29.3 | 28.5 |
| Poor sleep causes me to make mistakes at | 20.3 | 40.7 | 26.0 | 13.0 |
| work. |  |  |  |  |
| I am satisfied with my sleep. | 23.1 | 21.5 | 28.9 | 26.4 |
| Poor sleep makes me forget things more | 30.9 | 24.4 | 27.6 | 17.1 |
| easily. |  |  |  |  |
| Poor sleep makes it hard to concentrate at | 49.6 | 24.0 | 13.2 | 13.2 |
| work. |  |  |  |  |
| Sleepiness interferes with my daily life. | 31.7 | 39.8 | 22.3 | 5.0 |
| Poor sleep makes me lose desire in all things. | 34.2 | 34.2 | 22.5 | 9.2 |
| I have difficulty getting out of bed. | 24.0 | 37.2 | 26.4 | 12.4 |
| Poor sleep makes me easily tired at work. | 31.4 | 31.4 | 19.8 | 17.4 |
| I have a clear head after sleep. | 15.7 | 32.2 | 25.6 | 26.4 |
| Poor sleep makes my life painful. | 28.1 | 32.2 | 21.5 | 18.2 |

Results in table 3 reveal that majority of respondents had difficulty getting back to sleep once they woke up in middle of the night (67.5\%) implying that students normally have a lot of things that are worrying them that they keep them awake while they have suddenly woken up. Respondents who revealed that they had a clear head after sleep were the majority $(52 \%)$. This indicates that after sleep the students felt refreshed.

## Academic performance among university students

The ratings of the academic performance levels among students are presented in the table below.

Table 4:
Student's rating of Academic Performance

| Questions | Strongly <br> Agree | Agree | Neutral | Disagree | Strongly <br> Disagree |
| :--- | :--- | :--- | :--- | :--- | :--- |
| I made myself ready in all my <br> subjects. | 52.5 | 26.2 | 15.6 | 3.3 | 2.5 |
| I pay attention and listen during <br> every discussion. | 21.3 | 34.4 | 23.8 | 6.6 | 13.9 |
| I want to get good grades in every <br> subject. | 38.8 | 32.2 | 16.5 | 5.8 | 6.6 |
| I actively participate in every <br> discussion. | 14.8 | 30.3 | 34.4 | 13.9 | 6.6 |
| I gain focus when I see technical <br> problems. | 20.5 | 26.2 | 24.6 | 18.0 | 10.7 |
| I enjoy homework and activities <br> because they help me improve my <br> skills in every subject. | 26.2 | 28.7 | 27.0 | 13.1 | 4.9 |
| I exert more effort when I do difficult <br> assignments. | 20.5 | 34.4 | 24.6 | 16.4 | 4.1 |
| Solving problems is a useful hobby <br> for me. | 23.8 | 22.1 | 27.9 | 22.1 | 4.1 |

Results in Table 4 reveal that majority of respondents (78.7\%) revealed that they made themselves ready in all their subjects which implies that students wanted to study and were willing to work for it. Also majority of respondents ( $71.0 \%$ ) who revealed that they wanted to
get good grades in every subject this clearly indicates that respondents saw performing well in every subject was critical for their academic performance.

## Inferential statistics

Table 5:

Pearson correlation coefficient for stress and sleep quality

|  |  | Stress | Sleep quality |
| :--- | :--- | :---: | ---: |
| Stress | Pearson Correlation | 1 | $-.362^{* *}$ |
|  | Sig. (2-tailed) |  | .000 |
| Sleep quality | N | 123 | 123 |
|  | Pearson Correlation | $-.362^{* *}$ | 1 |
|  | Sig. (2-tailed) | .000 |  |
|  | N | 123 | 123 |

**. Correlation is significant at the 0.01 level (2-tailed).

Results in Table 5 show that there is a negative significant relationship between stress and sleep quality among university psychology students $\left(r_{s}=-0.362, p(0.000)<0.05\right)$. Implying that as the scores for stress increase, scores for sleep quality significantly decrease. Therefore, the alternative hypothesis is retained and it is concluded that there is a significant relationship between stress and sleep quality among $3^{\text {rd }}$ year BIOP students at Makerere University.

Table 6:
Pearson correlation coefficient for Stress and Academic Performance

|  | Stress | Academic <br> performance |  |
| :--- | :--- | :---: | :---: |
| Stress | Pearson Correlation | 1 | $-.185^{* *}$ |
|  | Sig. (2-tailed) | 123 | .035 |
|  | N | $-.185^{* *}$ | 122 |
| Academic <br> performance | Pearson Correlation | .035 | 1 |
|  | Sig. (2-tailed) | 122 | 122 |

**. Correlation is significant at the 0.05 level (2-tailed).

Pearson correlation results in Table 6 show that there is negative significant relationship between stress and academic performance ( $\mathrm{r}_{\mathrm{s}}=-0.185, \mathrm{P}<0.05$ ). This implies that as scores of stress increase, Academic Performance scores reduce. Therefore, alternative hypothesis is retained and it is concluded that there is a significant relationship between stress and academic performance.

Table 7:
Pearson correlation between academic performance and sleep quality

|  |  | Academic <br> performance | Sleep quality |
| :--- | :--- | :---: | :---: |
| Academic performance | Pearson Correlation | 1 | $-.099^{* *}$ |
|  | Sig. (2-tailed) | 122 | .027 |
|  | N | $-.099^{* *}$ | 122 |
| Sleep quality | Pearson Correlation | .027 | 1 |
|  | Sig. (2-tailed) | 122 | 123 |
|  | N |  |  |

**. Correlation is significant at the 0.05 level (2-tailed).

Results in Table 7 shows that there is a negative significant positive relationship between sleep quality and academic performance among BIOP third year university students $(\mathrm{r}=-0.099, \mathrm{p}<0.05)$. Implying that as the scores for academic performance increase, scores for sleep quality also significantly decrease and vice versa. Therefore, the alternative hypothesis is retained and it is concluded that there is a significant relationship between academic performance and sleep quality among Makerere University psychology students (BIOP).

## Multiple Regression analysis

To test the significance of the fourth hypothesis $\left(\mathrm{H}_{4}\right)$ which stated that sleep quality and stress are significantly related to academic performance, multiple regression analysis was used and results were as shown in Table 8.

Table 8:

Multiple Regression Analysis for Social media use, values and behavior among Makerere university students.

| Model | Unstandardized <br> Coefficients |  | Standardized <br> Coefficients | t | Sig. |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: |
|  | B | Std. Error | Beta |  |  |  |
| 1 | (Constant) | 23.082 | 3.121 |  | 7.396 | .000 |
|  | Sleep quality | -.038 | .048 | -.077 | -.785 | .434 |
|  | scale |  |  |  |  |  |
|  | Stress | -.046 | .003 | -.055 | -.560 | .577 |

a. Dependent Variable: academic performance

Results from Table 8 indicate that student's academic performance is negatively non significantly attributed to the independent attributes of sleep quality (beta $=-0.038, \mathrm{t}=-0.077$, $\mathrm{p}(0.434)>0.05)$ and overall stress $($ beta $=-0.046, \mathrm{t}=-0.560, \mathrm{p}(0.577)>0.05)$

## Chapter Five

## Discussion, Conclusion and Recommendations

## Introduction

This chapter presents the discussion of the study findings which are in line with the purpose and objectives of the study. A conclusion and recommendations are put forward.

## Discussion

Discussions of the study findings have been arranged according to study hypotheses.

## Stress and Sleep quality

The first hypothesis stated that stress is significantly influenced by sleep quality. The results revealed that there is a negative relationship between stress and sleep quality. Which indicates that an increase in stress leads to poor sleep and also students who get poor sleep quality are more likely to be stressed.

The study concurs with a study carried out by Ahmed, Banu, Al-Fageer, \& Al-Suwaidi. (2012) who found that Quality sleep affects mental health. Sleep is one of the causes of increased stress hormones, namely cortisol, and conversely, high levels of stress can interfere with sleep quality individuals. Poor sleep quality leads to feelings of anxiety, tension, fatigue, decreased intellectual, cognitive disorders, and depression

Lemma et al (2009) asserts that Stress and sleep affect each other. Poor sleep can increase stress, otherwise high-stress can also cause sleep disturbances because in their study they showed that changes in sleep in a long time could exacerbate stress conditions that can develop into depression. Also the study is in agreement with the study findings of Waqas, Khan, Sharif, Khalid, Ali, (2015) who claimed that $59.7 \%$ of the students suffered severe stress with $77 \%$ of students have poor sleep quality (Waqas, Khan, Sharif, Khalid, Ali, 2015).

The study findings agree with Wilson, (2007) that students with poor sleep quality 4.7 times more likely to have higher stress than students who have a good sleep quality. Stress experienced due to poor sleep quality ratings.

## Stress and Academic performance

The second hypothesis stated that there is a significant relationship between stress and academic performances. The study findings showed that there is a negative relationship between stress and academic performance. Which indicates that increase in stress will lower the rate of academic performance of students.

Stress among students is caused due to competition for grades, the need to perform well, relationships, career choices and many other aspects of the university environment are sources of stress. The problem arises when you feel too much stress. Such stress will demand high expectations of oneself, which causes a feeling of tension and pressure. This in most cases causes students to have poor grades as they can nolonger focus on any of their studies. This is especially because too much stress causes physical and mental health problems, low student self-esteem, and can also affect students' academic performance

The study findings agree with Lee \& Graham, (2001) assert that Stress is one of the factors that affect the academic performance of students.Stress is a major source of problems that students face during their university education when they are struggling to achieve academic outcomes for their future life since academic pressure is one of the factors that causes students to fail.

Wilson, (2007) reveals that too much stress undermines a person's psychological and physical health, which is bad so in the case of students are subject to different types of stressors, such as pressure from academics with the obligation to succeed, an uncertain future and
difficulties integrating into the system. Students also face social, emotional, physical and family problems that can affect their ability to learn which impede their academic performance.

The study findings concur with Zautra (2006) who reveals in her study found that excessive stress at school can lead to loss of appetite for reading, poor performance and reduced mental and physical health. Stress is caused by certain factors (stressors) that exist inside and outside the school environment These stressors can be identified as intra-individual, inter-individual, institutional and extra institutional stressors.

The study findings more precisouly agree with Richling, Klonsky \& Hoe (2003) revelations that too much or destructive stress happens the person has a burden that exceeds his or her available assets. If the stress is severe and prolonged, it can reduce academic performance, impede the ability of a student to become involved and contribute to campus life, and increase the likelihood of abuse of substances and other potentially destructive behaviors (Richling, Klonsky \& Hoe 2003).

The Person-Environment stress model suggests people might view stressful events as demanding or frightening. Perception of educational goals as a challenge creates stress and this stress, in turn, creates a sense of competence and an enhanced learning capacity (Khan et al, 2013). So the perception of education as a threat, however, brings with it a sense of hopelessness and a worrying sense of loss, leading to a drop in school results.

## Sleep quality and Academic performance

The third hypothesis stated that there is a significant relationship between sleep quality and academic performance. The study findings revealed that there is a negative relationship between sleep quality and academic performance. Which shows that students who have poor sleep quality will perform poorly at school as compared to those with better sleep quality.

Poor quality sleep, results in daytime sleepiness and an increase of physical and psychological health problems also increasing depressive symptoms which causes more inattentive behaviors and lower arousal during class.

The study findings are in agreement with Diekelmann and Born, (2010) asserts that Sleep stabilizes as well as enhances a wide variety of memory contents, also the encoding itself is negatively influenced by sleep deprivation. Furthermore, sleep inspires insight into hidden rules and facilitates generalization of knowledge. All these cognitive competences are of great importance during higher education, often considered the most demanding and challenging learning period in many people's life.

The study findings concur with Steiger, (2003) and Van-Reeth et al, (2000) who assert Sleep plays a vital role in maintaining good health throughout the lifespan of a person. Several studies strongly recommend that time of going to sleep and both sleep quality and quantity are connected with students' learning abilities and academic success. Moreover, the results of their studies depicted that more than $60 \%$ and $73 \%$ of college students' sleep quality was poor, which is the outcome of daytime sleepiness; also, these studies observed an increasing trend in both physical and mental health problems. In addition, restricted sleep in a simulated classroom led to lower exam scores, more distracted behaviours, and lower encouragement (VanReeth et al., 2000).

The study findings agree with Kelly et al. (2001) who indicates that sleep patterns explain the greatest variance in the students' cumulative weighted average. Kelly et al. classifies sleep habits into three categories: Short sleepers: individuals who, when left on their own schedule, have slept six hours or less. Average sleepers: individuals who sleep seven or eight hours. Long sleepers: people who sleep nine hours or more over twenty-four hours. The study found that people who were considered to be sleeping long reported higher GPAs. Indeed,
people who sleep fewer hours at night may suffer from psychological maladjustment and this increases their anxiety and stress, which has been associated with poorer academic performance. These factors cause problems for students, such as a reduction in attention span and an increase in the number of errors students make in tests.

## Conclusion

In conclusion the study found a negative relationship between stress and sleep quality, also the study has shown that negative relationship between stress and academic performance which shows that stress affects academic performance since an increase in stress leads to a decrease in academic performance. Lastly the study also found a negative relationship between stress academic performance and sleep quality.

## Recommendations

Students having poor academic performance suffer from the problems related to sleep quality and require medical advice for maintaining a healthier lifestyle including adequate rest time.

Assessment of sleep quality may also be incorporated in annual student health checks as a holistic approach. This study also suggests that the university healthcare service providers should attempt to enhance students' awareness of sleep health and promote individuals' willingness by highlighting behaviours associated with enhancing sleep.

## Areas for future research

There is need to generalize the study in order to cover others courses and years of study. This is because only BIOP year three students were interviewed which means that results findings might not be applicable to all other students of Makerere University.

There is also need to carryout a qualitative research to examine how sleep quality affects academic performance of students in order to pick the views of year three BIOP students.

## References

A. Waqas, S. Khan, W. Sharif, U. Khalid, A. Ali. (2015) Association of academic stress with sleeping di.culties in medical students of a Pakistani medical school. PeerJ, 1, pp. eqmi, http://dx.doi.org/ji.ppjp/peerj.qmi|Medline

Ahmed, H. Banu, R. Al-Fageer, R. Al-Suwaidi. (2012), Cognitive emotions: depression and anxiety in medical students and stage, J Crit Care http://dx.doi.org/ji.jijo/j.jcrc.kiir.io.iil-Medline

Arora, Nisha \& Singh, Neetu. (2017). Factors Affecting the Academic Performance of College Students. i-manager's Journal of Educational Technology. 14. 47. 10.26634/jet.14.1.13586.
B.D. Darnall, E.C. Suarez. (2009), Sex and gender in psychoneuroimmunology research: past, present and future. Brain Behav Immun, pp. 15-34 http://dx.doi.org/ji.jijo/j.bbi.kiir.ik.ijr

Beebe DW. Cognitive, behavioral, and functional consequences of inadequate sleep in children and adolescents. Pediatr Clin North Am. 2011 Jun;58(3):649-65. doi: 10.1016/j.pcl.2011.03.002. Epub 2011 Apr 1. PMID: 21600347;
C. Bodo, E.F. Rissman. (2021), New roles for estrogen receptor in behavior and neuroendocrinology. Front Neuroendocrinol, http://dx.doi.org/ji.jijo/j.yfrne.kiio.ik.iim

Cates ME, Clark A, Woolley TW, Saunders A. Sleep quality among pharmacy students. Am J Pharm Educ. 2015 Feb 17;79(1):09. doi: 10.5688/ajpe79109. PMID: 25741025; PMCID: PMC4346821.

Chemers, M. M., Hu, L.-t., \& Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. Journal of Educational Psychology, 93(1), 55-64. https://doi.org/10.1037/0022-0663.93.1.55

Chokroverty, Sudhansu (2009), Sleep Disorders Medicine, Basic Science, Technical Considerations and Clinical Aspects, $3^{\text {rd }}$ Edition, Elseiver Inc.

Cotton, Sarah \& Dollard, Maureen \& Jonge, J.. (2002). Stress and Student Job Design: Satisfaction, Well-Being, and Performance in University Students. International Journal of Stress Management. 9. 147-162. 10.1023/A:1015515714410.

Curcio, Giuseppe \& Ferrara, Michele \& De Gennaro, Luigi. (2006). Sleep loss, Learning capacity and academic performance. Sleep medicine reviews. 10. 323-37. 10.1016/j.smrv.2005.11.001.

Dalia Saleh, Nathali Camat and Lucia Romo, (2017) Predictors of Stress in College Students, Frontiers in Psychology, Vol. 8, doi: 10.3389

Diekelmann S, Born J. The memory function of sleep. Nat Rev Neurosci. 2010 Feb;11(2):114-26. doi: 10.1038/nrn2762. Epub 2010 Jan 4. PMID: 20046194.

Dixit, Abhinav \& Goyal, Abhishek \& Thawani, Rajat \& Vaney, Neelam. (2012). Effect of Caffeine on Information Processing: Evidence from Stroop Task. Indian journal of psychological medicine. 34. 218-22. 10.4103/0253-7176.106013.

Donnelly James H - GIBSON, James L - IVANCEVICH. John M. (1995), Fundamentals of administration,. Irwin, edition 8.

Eliasson A, Eliasson A, King J, Gould B, Eliasson A. (2002) Association of sleep and academic performance. Sleep Breath. 6(1):45-8. doi: 10.1007/s11325-002-0045-9. PMID: 11917265.

Eller T, Aluoja A, Vasar V, Veldi M. (2006) Symptoms of anxiety and depression in Estonian medical students with sleep problems. Depress Anxiety. 23(4):250-6. doi: 10.1002/da.20166. PMID: 16555263.

Engle-Friedman M, Riela S, Golan R, Ventuneac AM, Davis CM, Jefferson AD, Major D. (2003), The effect of sleep loss on next day effort. J Sleep Res. 12(2):113-24. doi: 10.1046/j.1365-2869.2003.00351.x. PMID: 12753348.

Gikunda, Raphael \& Odilla, Gilbert \& Abura, Lucy \& Kiriungi, Joyline \& Mugero, Muchiri Abstract (2014), The Effect of Sleep Quantity on Performance of Students in Public Universities, Kenya, 2; 113-118

Gomez Puente, Sonia Maria. (2006). Gómez Puente, S. et al. (2006). STOAS Universidad Profesional y la innovación en la formación inicial de docentes, In Modelos Innovadores en la Formación Inicial Docente (Innovative Models in the Professionalization of Initial Teachers). UNESCO/OREALC. Santiago de Chile, Chile. ISBN 956-8302-57-3 (Chapter of a book)..

Hall, M. B.; Akinyode, A., (2000). Cottonseed hulls: working with a novel fiber source. In: Proc. 11th Ann. Florida Rumin. Gainesville, FL: Nutr. Symp.: 179-186

Harlina Halizah Siraj, Abdus Salam, R. Roslan, (2014), Stress and its association with the Academic performance of undergraduate fourth year medical students at Universiti Kebangsaan Malaysia, International Medical Journal Malaysia 13(1): 19-24 http://dx.doi.org/ji.jigo/jmpj-kmmX-jk-klp

Jeffrey M. Ellenbogen, and Matthew P. (2007), Human relational memory requires time and sleep https://doi.org/10.1073/pnas. 0700094104
K. Ahrberg, M. Dresler, S. Niedermaier, A. Steiger, L. Genzel. (2012), The interaction between sleep quality and academic performance. J Psychiatr Res, http://dx.doi.org/ji.jijo/j.jpsychires.kijk.ir.iiq

Kachikis AB, Breitkopf CR. (2011) Predictors of sleep characteristics among women in southeast Texas. Womens Health Issues. 2012 Jan-Feb;22(1):e99-109. doi: 10.1016/j.whi.2011.07.004. Epub PMID: 21875813; PMCID: PMC3248637.

Kamarudin, Rafidah \& Aris, Azizah \& Norzaidi, Mohd \& Chong, Siong-Choy \& Mohamed, Intan \& Ibrahim, Noraini. (2009). The impact of perceived stress and stress factors on academic performance of pre-diploma science students: a Malaysian study. International Journal of Scientific Research in Education. 2. 13-26.

Kashani, Ahmad \& Sajjadi, Samad \& Sohrabi, Mohammad-Reza \& Younespour, Shima. (2011). Optimizing visually assisted listening comprehension. Language Learning Journal. 39. 75-84. 10.1080/09571730903545236.

Khan, S.J., Bajpai, A., Alam, M.A., Gupta, R.P., Harsh, S., Pandey, R.K., Goel-Bhattacharya, S., Nigam, A., Mishra, A., Sinha, P. (2013). Epithelial neoplasia in Drosophila entails switch to primitive cell states. Proc. Natl. Acad. Sci. U.S.A. 110(24): E2163--E2172.

Largo-Wight, Erin \& Peterson, Michael \& Chen, William. (2005). Perceived Problem Solving, Stress, and Health Among College Students. American journal of health behavior. 29. 360-70. 10.5993/AJHB.29.4.8.

Lee, J. \& G Raham , A.V. (2001). Students' perception of medical school stress and their evaluation of wellness elective. Medical Education, 35, 652-659.

Lemma, S., Gelaye, B., Berhane, Y. (2012) Sleep quality and its psychological correlates among university students in Ethiopia: a cross-sectional study. BMC Psychiatry 12, 237. https://doi.org/10.1186/1471-244X-12-237

Louca M, Short MA. (2014), The effect of one night's sleep deprivation on adolescent neurobehavioral performance. Sleep. 37(11):1799-807. doi: 10.5665/sleep.4174. PMID: 25364075; PMCID: PMC4196063.

Lund HG, Reider BD, Whiting AB, Prichard JR. (2009), Sleep patterns and predictors of disturbed sleep in a large population of college students. J Adolesc Health. 2010 Feb;46(2):124-32. doi: 10.1016/j.jadohealth. Epub 2009 Aug 3. PMID: 20113918.

Maha A. Safhi, Raghad A., Alafif, Nouf M. Alamoudi, Malak M. Alamoudi, Wejdan A. Alghamdi, Shatha F. Albishri, Hisham Rizk, (2020), The association of stress with sleep quality among medical students at King Abdulaziz University, Journal of Family Medicine and Primary Care; 1662

Mensah, Henry Kofi \& Fosu, Felicia \& Oteng-Abayie, Eric Fosu. (2017). Occupational stressors among university non-academic staff: results from a representative public university in Ghana. International Journal of Business Excellence. 13. 200-216. 10.1504/IJBEX.2017.10007043.

Mensah, Henry Kofi \& Fosu, Felicia \& Oteng-Abayie, Eric Fosu. (2017). Occupational stressors among university non-academic staff: results from a representative public university in Ghana. International Journal of Business Excellence. 13. 200-216. 10.1504/JJBEX.2017.10007043.

Mirghani, H.O., Mohammed, O.S., Almurtadha, Y.M. et al. (2015), Good sleep quality is associated with better academic performance among Sudanese medical students. BMC Res Notes 8, 706. https://doi.org/10.1186/s13104-015-1712-9

Misra, R., \& McKean, M. (2000). College Students' Academic Stress and Its Relation to Their Anxiety, Time Management, and Leisure Satisfaction. American Journal of Health Studies, 16, 41-51.
N.S. Redeker, G.P. McEnany. (2021), Sleep disorder and sleep promotion in nursing practice. Springer Publishing Company, LCC,

Niemi, P. M., \& Vainiomäki, P. T. (1999). Medical students' academic distress, coping, and achievement strategies during the preclinical years. Teaching and Learning in Medicine, 11(3), 125-134. https://doi.org/10.1207/S15328015TL110302

Pilcher JJ, Walters AS. (1997), How sleep deprivation affects psychological variables related to college students' cognitive performance. J Am Coll Health. 46(3):121-6. doi: 10.1080/07448489709595597. PMID: 9394089.
R. Lohitashwa, N. Kadli, R. Kisan, A. Sindhuja, D. Deshpande. (2020) Effect of stress on sleep quality in young adult medical students: a cross sectional study. Int J Res Med Sci, 1 (kijn), pp.234-446
R. Rono, (2013), Factors Affecting Pupils' Performance in Public Primary Schools at Kenya Certificate of Primary Education Examination (Kcpe) in Emgwen Division, Nandi District, Kenya.

Ranasinghe, P., Wathurapatha, W.S., Mathangasinghe, Y. et al. (2017), Emotional intelligence, perceived stress and academic performance of Sri Lankan medical undergraduates. BMC Med Educ 17, 41. https://doi.org/10.1186/s12909-017-0884-5

Reddy K. J, Menon K. R, Thattil A. (2011) Academic Stress and its Sources Among University Students. Biomed Pharmacol J 1). Available from: http://biomedpharmajournal.org/?p=19485

Reeth, O. \& Weibel, L. \& Spiegel, Karine \& Leproult, Rachel \& Dugovic, Christine \& Maccari, Stefania. (2000). Interactions between stress and sleep: from basic research to clinical situations. Sleep Med. Rev.. 4. 201-219.
S. Lemma, B. Gelaye, Y. Berhane, A. Worku, M.A. Williams, (2009), Sleep quality and its psychological correlates among university students in Ethiopia: a cross-sectional study. BMC Psychiatry, 345-560
S.H. Lin, Y.C. Huang. (2018), Life stress and academic burnout. Active Learn High Educ, jn , pp. 24-102 http://dx.doi.org/ji.jipp/jmorpqpmjlnjmonj

Shaikh, Babar \& Kahloon, Arslan \& Kazmi, Muhammad \& Khalid, Hamza \& Nawaz, Kiran \& Khan, Nadia \& Khan, Saadiya. (2004). Students, Stress and Coping Strategies: A Case of Pakistani Medical School. Education for health (Abingdon, England). 17. 346-53. 10.1080/13576280400002585.

Sharma, Nidhi \& Mahto, Janmejay \& Parasar, Ashok. (2017). To Study the Relationship between Level of Stress and Coping Strategies among Parents of Mentally Retarded and Autistic Children. International Journal of Indian Psychology. 4. 10.25215/0403.101.

Sing CY, Wong WS. Prevalence of insomnia and its psychosocial correlates among college students in Hong Kong. J Am Coll Health. 2010;59(3):174-82. doi: 10.1080/07448481.2010.497829. PMID: 21186447.

Smith, A., Johal, S., Wadsworth, E., Davey Smith, G., \& Peters, T. (2000). The Scale of Occupational Stress: The Bristol Stress and Health at Work Study. Contract Research Report 265/2000, London: HSE Books.

Stickgold, R. Sleep-dependent memory consolidation. Nature 437, 1272-1278 (2005). https://doi.org/10.1038/nature04286

Taylor D.J \& Bramoweth A.D. (2010), Patterns and consequences of inadequate sleep in college students; Substance use and motor vehicle accidents, Journal of Adolescent Health 46(6), 610-612

Tennen, H., Affleck, G., \& Zautra, A. (2006). Depression history and coping with chronic pain: A daily process analysis. Health Psychology, 25(3), 370-379. https://doi.org/10.1037/0278-6133.25.3.370

Titus Iloduba Eze, ustina Ifeyinwa Ezenwafor, Ifeoma Jacinta Obidile, (2016), Effects of Problem Based Teaching Method on Students' Academic Performance and Retention in Financial Accounting in Technical Colleges in Anambra State, Scholars Journal of Art, Humanities and Social Sciences, Doi: 10.21276

Tus, Jhoselle. (2020). Academic Stress, Academic Motivation, and Its Relationship on the Academic Performance of the Senior High School Students. 8. 29-37. 10.6084/m9.figshare.13174952.v1.

Vermont and Achenbach, Thomas \& Steensma,Mcconaughy, Stephanie \& Howell, Catherine. (2005). Child/Adolescent Behavioral and Emotional Problems: Implications of Cross-Informant Correlations for Situational Specificity. Psychological bulletin. 101. 213-32. 10.1037/0033-2909.101.2.213.

Vogel, Ryan \& Rodell, Jessica \& Agolli, Anastasiia. (2009). Daily engagement and productivity: The importance of the speed of engagement. Journal of Applied Psychology. 107. 10.1037/ap10000958.

Wagner U., Gais S., Haider H., Verleger R., Born J. (2004), Sleep inspires insight. Nature. 427(6972):352-355.

Werf, Ybrand \& Altena, Ellemarije \& Schoonheim, Menno \& Sanz-Arigita, Ernesto \& Vis, José \& Rijke, Wim \& Van Someren, Eus J W. (2009). Sleep benefits subsequent hippocampal functioning. Nature neuroscience. 12. 122-3. 10.1038/nn. 2253.

Wilson DC. (2007), Development drivers for waste management. Waste Management \& Research. 25(3):198-207. doi:10.1177/0734242X07079149

Wolfson AR, Carskadon MA. (2003), Understanding adolescents' sleep patterns and school performance: a critical appraisal. Sleep Med Rev. (6):491-506. doi: 10.1016/s1087-0792(03)90003-7. PMID: 15018092.

Yoo SS, Gujar N, Hu P, Jolesz FA, Walker MP. (2007), The human emotional brain without sleep--a prefrontal amygdala disconnect. Curr Biol. 17(20):R877-8. doi: 10.1016/j.cub.2007.08.007. PMID: 17956744.

Zajacova, Anna \& Lynch, Scott \& Espenshade, Thomas. (2005), Self-Efficacy, Stress, and Academic Success in College. Research in Higher Education. 46. 677-706. 10.1007/s11162-004-4139-z.

## Appendices

## Appendix 1:

## Questionnaire

Questionnaire about the Stress, Sleep quality and Academic performance of students of Makerere University.

Dear Respondents I am a students of Makerere University, School of psychology carrying out a research entitled Stress, Sleep quality and Academic performance of students of Makerere University. You have been chosen to be part of this research. Please tick the most correct answer if. Your information will be kept confidential and will only be used for study purposes

## Instructions

Please tick the most correct answer

## Section A: Biodata

Sex

Male


Female
Age

Year of study

| $1^{\text {st }}$ year | $\square$ | $2^{\text {nd }}$ year | $\square$ |
| :--- | :--- | :--- | :--- |
| $4^{\text {th }}$ year | $\square$ | $5^{\text {th }}$ year | $\square$ |

Course: $\qquad$

## Section B: Stress

## Instructions

Please tick the most correct answer

| Item | Never | Almost <br> never | Some <br> times | Fairly <br> often | Very <br> often |
| :--- | :--- | :--- | :--- | :--- | :--- |
| In the last month, how often have you <br> been upset because of something that <br> happened unexpectedly? |  |  |  |  |  |
| In the last month, how often have you felt <br> that you were unable to control the <br> important things in your life? |  |  |  |  |  |
| In the last month, how often have you felt <br> nervous and stressed? |  |  |  |  |  |
| In the last month, how often have you felt <br> confident about your ability to handle <br> your personal problems? |  |  |  |  |  |
| In the last month, how often have you felt <br> that things were going your way? |  |  |  |  |  |
| In the last month, how often have you <br> found that you could not cope with all the <br> things that you had to do? |  |  |  |  |  |
| In the last month, how often have you <br> been able to control irritations in your life? |  |  |  |  |  |
| In the last month, how often have you felt <br> that you were on top of things? |  |  |  |  |  |
| In the last month, how often have you <br> been angered because of things that <br> happened that were outside of your <br> control? |  |  |  |  |  |
| In the last month, how often have you felt <br> difficulties were piling up so high that <br> you could not overcome them? |  |  |  |  |  |

## Section C: Sleep quality scale

## Instructions

Please tick the most correct answer

| Rarely : None or 1-3 times a month | Sometimes : 1-2 times a week |
| :--- | :--- |
| Often : 3-5 times a week | Almost always : 6-7 times a week |


|  |  | Rarely | Sometimes | Often | Almost <br> always |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 1 | I have difficulty falling asleep. |  |  |  |  |
| 2 | I fall into a deep sleep. |  |  |  |  |
| 3 | I wake up while sleeping. |  |  |  |  |
| 4 | I have difficulty getting back to sleep once <br> I wake up in middle of the night. |  |  |  |  |
| 5 | I wake up easily because of noise. |  |  |  |  |
| 6 | I toss and turn. |  |  |  |  |
| 7 | I never go back to sleep after awakening <br> during sleep. |  |  |  |  |
| 8 | I feel refreshed after sleep. |  |  |  |  |
| 9 | I feel unlikely to sleep after sleep. |  |  |  |  |
| 10 | Poor sleep gives me headaches. |  |  |  |  |
| 11 | Poor sleep makes me irritated. |  |  |  |  |
| 12 | I would like to sleep more after waking up. |  |  |  |  |
| 13 | My sleep hours are enough. |  |  |  |  |
| 14 | Poor sleep makes me lose my appetite. |  |  |  |  |
| 15 | Poor sleep makes hard for me to think. |  |  |  |  |
| 16 | 1 feel vigorous after sleep. |  |  |  |  |
| 17 | Poor sleep makes me lose interest in work <br> or others. |  |  |  |  |
| 18 | My fatigue is relieved after sleep. |  |  |  |  |
| 19 | Poor sleep causes me to make mistakes at <br> work. |  |  |  |  |
| 20 | I am satisfied with my sleep. |  |  |  |  |
| 21 | Poor sleep makes me forget things more <br> easily. |  |  |  |  |
| 22 | Poor sleep makes it hard to concentrate at <br> work. |  |  |  |  |
| 23 | Sleepiness interferes with my daily life. |  |  |  |  |
| 24 | Poor sleep makes me lose desire in all <br> things. |  |  |  |  |
| 25 | I have difficulty getting out of bed. |  |  |  |  |
| 26 | Poor sleep makes me easily tired at work. |  |  |  |  |
| 27 | I have a clear head after sleep. |  |  |  |  |
| 28 | Poor sleep makes my life painful. |  |  |  |  |

## Section D: Academic performance

## Instructions

Please tick the most correct answer

| Questions | Strongly <br> Agree | Agree | Neutral | Disagree | Strongly <br> Disagree |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 1. I made myself ready in all my <br> subjects. |  |  |  |  |  |
| 2. I pay attention and listen during <br> every discussion. |  |  |  |  |  |
| 3. I want to get good grades in every <br> subject. |  |  |  |  |  |
| 4. I actively participate in every <br> discussion. |  |  |  |  |  |
| 5. I gain focus when I see technical <br> problems. |  |  |  |  |  |
| 6. I enjoy homework and activities <br> because they help me improve my <br> skills in every subject. |  |  |  |  |  |
| 7. I exert more effort when I do <br> difficult assignments. |  |  |  |  |  |
| 8. Solving problems is a useful <br> hobby for me. |  |  |  |  |  |

## Appendix 2:

Timeframe

| Items |  |  | Months |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Expected results | Outcome indicators | Activities | May | Jun | July | Aug | Sep | Oct |
| Topic and objectives' development. | Availed topic and objectives. | Developing research topic and objectives. | $\checkmark$ | $\checkmark$ |  |  |  |  |
| Evidence of literature review. | Existing literature compiled. | Reviewing Social Media Addiction, Values and Behavior. |  | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| Compiled proposal. | Submission of the proposal. | Compiling the proposal. |  |  |  | $\checkmark$ | $\checkmark$ |  |
| Study area mapped. | Study area mapped. | Identification of respondents of the study |  |  |  |  | $\checkmark$ |  |
| Data collected. | Data base created. | Collection of data. |  |  |  |  | $\checkmark$ | $\checkmark$ |
| Evidence of edited data. | Final data base with data files. | Creation of the final data base. |  |  |  |  |  | $\checkmark$ |
| Data analysis. | Data analysed. | Using SPSS. |  |  |  |  |  | $\checkmark$ |
| Final proposal compiled. | Final proposal submission. | Submitting the final proposal. |  |  |  |  |  | $\checkmark$ |

## Appendix 3:

## Budget

## Budget for a Research Proposal for A Bachelor of Industrial and Organizational Psychology degree

| Serial no. | Requirements and Details | Quantity | Price per unit | Total amount |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Ug Shs | Ug Shs |
| A | Equipment and Stationery |  |  |  |
| 1 | Flash disc | 1 | 60,000 | 60,000 |
|  | Sub total |  | 60,000 | 60,000 |
| B | Personnel |  |  |  |
| 2 | Research Assistant - (2) | $3$ <br> months | 300,000 | 900,000 |
| 3 | Researcher's Allowance | 2 months | 250,000 | 500,000 |
| 4 | Transport services | $2$ <br> months | 50,000 | 100,000 |
| 5 | Communication |  |  | 400,000 |
|  | Sub total |  |  | 1,900,000 |
| C | Printing Services |  |  |  |
| 6 | Printing the questionnaire | 23 | 400 | 93,600 |
| 7 | Printing the Proposal | 3 pcs | 3700 | 11,100 |
| 8 | Binding Proposal | 3 pcs | 3000 | 9000 |
| 9 | Photocopying services | 111 | 100 | 11,100 |
|  | Sub total |  |  | 124,800 |
|  | Grand total |  |  | 2,084,800 |

