

**SLEEP QUALITY, PSYCHOLOGICAL WELL-BEING AND ACADEMIC
PERFORMANCE AMONG UNDERGRADUATE STUDENTS OF MAKERERE
UNIVERSITY.**

**BY
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**A RESEARCH DISSERTATION SUBMITTED TO THE SCHOOL OF PSYCHOLOGY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
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DECLARATION

I Rabiha I.C.K Nakalema, do declare that the contents in this report are my own findings and have never been submitted to any Institution of Higher learning for any award of a degree. However, due reference has made been in cases where other scholars works were used or where experts.

Sign.....

Date.....17/12/2022.....

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Student

APPROVAL

This is to certify that Rabiha I.C.K Nakalema has been under my guidance and supervision and this report is submitted for examination with my approval.

Sign.....



Date.....

19/12/2022

Dr. Muwonge Vincent

Supervisor

DEDICATION

This study is dedicated to my loving family members, Dad and Mum, my sisters, Brothers and Relatives.

ACKNOWLEDGEMENT

Firstly, I thank the almighty God who enabled me to finish this work and my academics, glory is back to him.

Secondly, I extend my sincere thanks to my supervisor Dr. Muwonge Vincent for devoting his time to read through this research project report and providing assistance that enabled me to continue with the study to the end.

On a third note, I would like to thank my parents and my brother for their financial and moral support throughout this period.

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LIST OF ABBREVIATIONS

PSQI	Pittsburgh Sleep Quality Index
WHO	World Health Organization
CGPA	Cumulative Grade Point Average

ABSTRACT

The study was carried out from Makerere University, Kampala among undergraduate students. The main objective of the study was to investigate the relationship between sleep quality, psychological well-being and academic performance among undergraduate students of Makerere University. Sleep quality components such as sleep durability, sleep latency, daytime dysfunction, sleep disturbance, sleep efficiency, use of sleep medication, subjective sleep quality and global PSQI were considered. Psychological well-being dimensions such as autonomy, environmental mastery, personal growth, positive relations, purpose in life and self-acceptance. The research methodology for the study was descriptive cross-sectional research design. The sample size was 31 respondents and both stratified and simple random sampling techniques were applied in selecting the respondents who were included in the sample. The researcher used questionnaires to collect data and data was analysed using SPSS version 25 at univariate and bivariate levels. Using Pearson correlation coefficient and significance P-values the study found out that academic performance (CGPA) is significantly influenced by global sleep score (P-value=0.006, $r=-0.534$), overall sleep quality ($r=0.721$, p-value=0.000), daytime dysfunction ($r=0.224$, p-value=0.013) and sleep duration ($r=0.129$, p-value=0.029). the study also found out that psychological well-being dimensions such as is influences academic performance. Lastly, the study fond out that PSQI sleep score and psychological well-being were significantly related evidenced with $\chi^2=8.910$, $P=0.020$ less than 0.05. In conclusion, overall sleep quality had a strong significant association with academic performance, low psychological well-being among students may cause unhappiness, dissatisfaction in life and low self-esteem which will brings the implication of them facing higher level of pressure. Dimensions of psychological well-being which are environmental mastery, personal growth, positive relationship with others, purpose in life and self-acceptance influence academic achievement of undergraduate students. The study recommended that students, lecturers, university counselors, wardens and matrons increase their awareness about healthy sleep patterns, sleep needs and consequences of poor sleep. This could be done through university-based sleep education programs, school magazines and assembly.

CHAPTER-ONE

INTRODUCTION

1.1 Background of the study

Psychological well-being is a core feature of mental health, and may be defined as including hedonic (enjoyment, pleasure) and eudemonic (meaning, fulfillment) happiness, as well as resilience (coping, emotion regulation, healthy problem solving). (James & Yi-Yuan, 2019). Psychological well-being is an important research field and therefore the issue increasingly receives global concern (Ann, 2012). For example, in UK, the UK Psychiatric Morbidity survey reported significant increases in anxiety and depression among the young aged 16 to 24. Research shows that positive mental health serves as a protective role against health risk behaviors but negative mental health would result in risky behaviors among university students.

In addition, a large number of cross-sectional evidence shows that individual having much depression and hopeless tends to be less physically active and has more destructive feelings such as suicidal thoughts, Macaskill studied the students from academic year for first, second, third year in the UK and found rates of mental illness in students are same as that of the general population, whereas only 5.1% of them can receive treatment. University students are therefore five times more likely to be recognized with mental health issues for example depression and anxiety.

Sleep quality is an individual's self-satisfaction with all aspects of the sleep experience, sleep quality has four attributes that is sleep efficiency, sleep latency, sleep duration, and wake after onset (Kathy & Jean, 2022). Sleep is of utmost importance for proper brain function and mental health and about one third of the world's population is estimated to have insufficient sleep and fatigue. A review by Riemann et al. in 2010 found that sleep quality seems to correlate with high negative and low positive emotions both in clinical and sub-clinical samples. Decades of epidemiological research have found that sleep quality is negatively correlated with mental health problems in different populations. For example, Alireza et al. reported a strong correlation between mental health and sleep quality, therefore poor sleep quality was even reported to be positively associated with increased odds of suicidal ideation in individuals. Research also shows that sleep disturbances are highly prevalent among Sub-Saharan Africans and are important risk factors for other adverse health outcomes (Isabel, Francisco, & Bizu, 2015).

Poor sleep quality is a symptom, and it is featured by difficulty of falling and remaining asleep. Extensive research has shown that sleep quality has become increasing public health focus and

poor sleep quality leads to increased risk of mental problems, including depression and anxiety. Nowadays, poor sleep quality is a prevalent symptom among young adults, affecting over 10% of the adult population. Among these young adults, there are plenty of university students. Volker discussed that university students biological sleep rhythms are disrupted because they experience more stress regarding their futures and employment or late-night computer work. Besides, academic work, later bedtime resulted from social integration demand, environmental noise is disturbing undergraduate student's sleep quality. Hence reduction in sleep duration and sleep quality across population has been linked to changes in lifestyle, increasing use of technology and increased work and social demands. Sleep problems, including insufficient or poor sleep quality, are alarmingly prevalent among students and it compromises emotional, behavioral, and physical functioning. The effects of sleep quality and psychological well-being on the academic performance of university students have not been documented. Therefore, university students in Uganda need to be studied to find out if sleep quality has similar effects to those studied elsewhere.

1.2 Problem Statement

Good sleep quality is an important psychological issue for human life, but poor sleep quality would bring serious psychological well-being problems. Researchers have found that poor sleep quality significantly increased the risk for declines in social, psychological and mental health. This research is therefore sought to examine the association between sleep quality and psychological well-being of undergraduate students of Makerere University so as to generate and develop a model that can improve the quality of sleep in order to enhance psychological well-being for better standards of academic performance.

1.3 Purpose of the study

The purpose of the study investigated the relationship between sleep quality, psychological well-being and academic performance among undergraduate students of Makerere University.

1.4 Objectives of the study

To examine the influence of sleep quality on the psychological well-being among undergraduate students of Makerere University.

To establish the relationship between sleep quality and academic performance.

To establish the relationship between psychological well-being and academic performance.

1.5 Research Questions

What is the quality of sleep of undergraduate students of Makerere University based on age, gender?

What is the state of psychological well-being of undergraduate students of Makerere University?

Which factors of sleep had significant effects on the quality of sleep of undergraduate students of Makerere University?

1.6 Scope

1.6.1 Geographical scope

The research was carried out from Makerere University, Kampala among undergraduate students. This is because of the prevailing low performance among students.

1.6.2 Conceptual scope

The study focused on sleep quality, psychological well-being and academic performance among undergraduate students of Makerere University. Sleep quality can therefore be interpreted as how well you are sleeping in other words, whether your sleep is restful and restorative (National Sleep Foundation, 2020). Psychological well-being consists of positive relationships with others, personal mastery, autonomy, a feeling of purpose and meaning in life and personal growth and development, therefore psychological well-being is attained by achieving a state of balance affected by both challenging and rewarding life events (Wikipedia, n.d.).

1.7 Significance

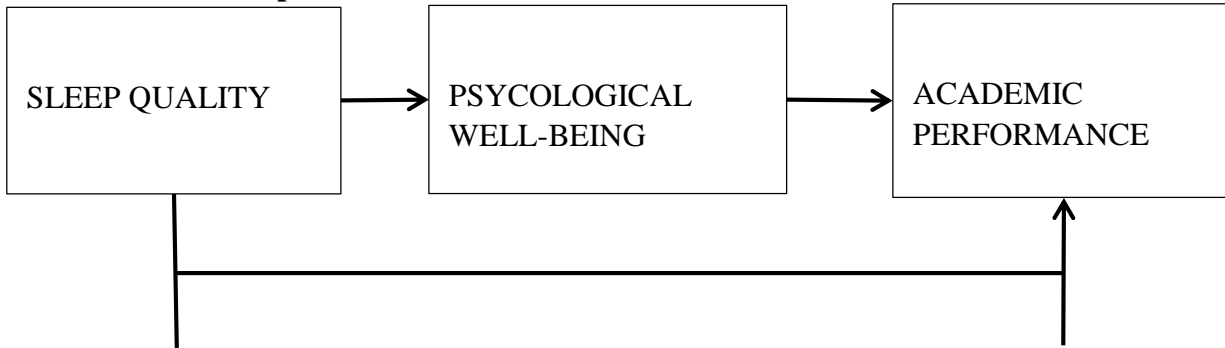
The study will be useful to future researchers as it will show a better understanding of the variables to the researchers in trying to understand the relationship between variables.

The study will also be used as a base for further training of psychologists, research, social workers, and counselors working with students and other people troubled with sleep and those with psychological problems.

The findings of the research will also provide up-to-date literature and open the field for further research to academicians and researchers who may be interested in the area of sleep quality and psychological well-being.

1.8 Conceptual Framework

Figure 1.1 conceptualizes the relationship between sleep quality, psychological well-being and academic performance



Sleep quality influences psychological well-being as shown above. This can be seen among student's creative thinking, physical health, and pro-social behavior. Psychological well-being can also influence academic performance among students as seen above. This can be shown in cases where the student disengages from any activities at the university like coursework and decide to other things and it reduces their academic performance. Sleep quality also influences academic performance as shown above.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter comprises of research findings of what previous authors found out on the variables that are studied in this research. The research findings used are explanations on the existence or absence of relationships on the variables. The topics used are from objectives of chapter one including to; to examine the influence of sleep quality on the psychological well-being, establish the relationship between sleep quality and academic performance, establish the relationship between psychological well-being and academic performance.

2.1 Sleep Quality and Psychological Well-being

Sleep is one of the most basic and essential functions of the human body. It plays a vital role in good health and psychological well-being as food and water is. Getting enough quality sleep at the right times can help protect a person's mental health, physical health, quality of life and safety (NSF, 2015). Therefore, sleep quality is a vital construct to researchers due to the high prevalence of disturbed sleep and the clear relevance of sleep quality to optimal health and functioning.

Although inadequate sleep quality has been shown to negatively affect cognitive function and academic performance, overall sleep quality may have a significant effect than quantity of sleep (Pilcher, et al, 1997). Almost every species requires sleep and humans on average, spend one third of their life asleep. It is reported that sleep is food for the brain (NSF, 2008). When sleep quality and or duration are reduced, the human body responds in many ways to initiate sleep. To initiate sleep the brain will increase feelings of sleepiness, decrease a person's ability to concentrate and extreme cases may, without warning may force the body to sleep. Lack of sleep contributes to reduced concentration, short term memory, learning ability and behavioral self-control.

In two studies in which subjects completed a seven-day sleep log, Pilcher, Ginter, and Sadowski (1997) found that measures of health, emotion, life satisfaction, fatigue, and sleepiness were better related to sleep quality than sleep quantity. Pilcher and Ott (1998) reported that subjective health and well-being were found to be more closely related to sleep quality than to quantity, hence as both overall average sleep quality deteriorated, participants were more likely to make complaints regarding both physical and psychological health and well-being.

In Lebanon, 52% of 735 students aged 18-25 enrolled across six universities had poor sleep quality (Assaad, Costanian, Haddad, & Tannous, 2014). In Ethiopia, 55.8% Of 2,551 students aged 13-18 years had poor sleep quality (Lemma et al., 2012), and Iran, with 56% of 943 pre-university students aged 18 years. In Jordan 85% of 118 of nursing college students had poor sleep quality. This was attributed to more exposure to sleep disturbances, as medical and nursing students woke up earlier as they required to attend early morning clinical courses and had shorter sleep time and daytime dysfunction to meet the demands of their studies compared to other groups of students (Suleiman et al., 2013).

The above study examined the association between students' sleep quality measured using the Pittsburgh Sleep Quality Index (PSQI) and psychological wellbeing. Poor sleep quality was correlated with psychological wellbeing. In this research study students were asked to self-report several different sleep variables related to sleep quality including sleep efficiency (the percent of time in bed that is actually spent sleeping), sleep onset latency, time spent awake at night and time awake after sleep onset.

In some studies, sleep efficiency has been considered as essential for recovery, cognitive processing, and memory integration yet on the other hand, lack of sleep has been associated with emotional instability and impaired concentration. In this regard, students are particularly at risk of developing sleep disorders and development and this can affect their psychological well-being.

In general population, associations between sleep quality and psychological well-being have only recently began to gain attention (Hamilton, Nelson, Stevens, & Kitzman, 2007). The lack of empirical research to better understand the relationship between sleep quality and psychological well-being in University students drives this study.

2.3 Sleep quality and academic performance

Sleep is an inseparable part of human health and life, which is crucial in learning, practice, as well as physical and mental health. It affects the capacity of individual learning, academic performance and neural- behavioral functions. Studies have suggested that insufficient sleep, increased frequency of short-term sleep and going to sleep late and getting up early affect the learning capacity, and academic performance (Dewald, Meijer, & F, 2000).

Some previous studies have indicated that the quantity of sleep reported by individuals as delayed or inappropriate sleep, waking up too late, especially at weekends and daytime sleepiness is associated with comprised academic performance among adults and children. In a study, people

who had enough sleep compared to their sleep-deprived individuals used innovative solutions twice as often when confronted with complex mathematical problem (Amatoury, Jordan, & Toson, 2018).

Eliasson (2010) believes that the time it takes to fall asleep and waking up affect academic performance more than duration of sleep does (Arne & Christopher, 2010). Sweileh and colleagues (2011) also believe that there is no relationship between sleep quality and academic success. Similarly, it is claimed there is no relationship between the night sleep before the exam and test scores either. Other researchers believe stress from lack of sleep causes poor sleep performance (Kurosh, Martin, & Sophie, 2012). On the other hand, in a systematic review, the authors could not establish a cause and effect relationship between sleep quality and academic performance. Therefore, in their meta-analysis study, Dewald (2010) emphasized that because of the diversity of the methodology of studies, it is impossible to definitely derive a relationship between sleep quality and academic performance and therefore more longitudinal intervention studies are warranted. Hence due to the different conclusions in this respect, a relationship between sleep quality and academic performance among undergraduate students of Makerere University is encouraged to research about. This is because very little attention has been paid to the relationship between sleep quality and academic performance.

2.4 Psychological well-being and academic performance

Psychological well-being is often thought of as a hallmark of the educational experience because educational encounters and experiences allow students to search for meaning and direction in their lives, it is aimed at helping students realize their true potentials and actualize their human existence as to become responsible agents who are able to participate richly in the good life (Seifert, 2005). There is need to better understand the factors that influence student's psychological well-being and how it affects academic performance. To date no research has examined psychological well-being among university students in Uganda and how different university experiences alter psychological well-being as well as academic performance. To better understand psychological well-being of undergraduate university students, researchers focused on what occurs during university life that contributes or detracts psychological well-being. How does the university environment influence psychological wellbeing of students?

Students that acquire higher education are considered to be the future leaders. Therefore, Academic success is regarded as their major life achievement and key goal of life. During their academic

career, students face various responsibilities and challenges and this could be the main reason and primary source of stress and anxiety. In the majority of cases students are able to handle the difficulties which they face, however in the number of cases these challenges may have a serious impact on the young person's psychological well-being (Tamara & Japaridze, 2012).

In order for students or adolescents to achieve their life goals and obtain academic success, it is important to be in a psychologically healthy condition. This is because stressful atmosphere may create and or elevate psychological distress and reduce their academic performance (Dwyer & Cummings, 2001). Emotional intelligence, self-efficacy and psychological well-being (happiness, life satisfaction and depression) are important resources for enhancing students' learning, success and quality in education (Salami, 2010).

According to World Health Organization (WHO), well-being consists of physical, social and mental aspects and depends on complex interaction between individual and contextual factors (WHO, 2014). Positive well-being, when these aspects are balanced, should aid in realizing potential and being productive and therefore academic achievement is the outcome. Hence psychological well-being can improve on academic achievement and also lead to low academic performance.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the methods as well as the research designs which are going to be used to sample the population and the target population bringing out the sample size. It further looks at the methods of data collection, research instruments, their validity and reliability, data processing and analysis.

3.1 Research design

The research used a cross sectional research design. researcher to generate information in a relatively short time from the target population as there is no need for follow up to be done. In this design, the researcher was interested in picking only some representative sample elements of cross-section of the population one at a time without revisiting the respondents. It was explored with the aid of a descriptive and inferential statistics.

3.2 Population

The study population included all students of Makerere University on undergraduate program both female and male. This is because they had enough information on sleep quality, psychological well-being and academic performance.

3.3 Data and its sources

Data was collected from both secondary and primary sources. Primary data are original data that has been collected specifically for the purpose in mind. Primary data was obtained from primary sources that constitute undergraduate students. This is because they were the key participants in this research and their response to the questions were of great importance during the evaluation process of the findings. The relevant primary data was collected from undergraduate students of Makerere University, Kampala who were selected randomly.

Secondary sources of data were used in the process of reviewing of relevant and related information from textbooks, research papers, journals, internet and dissertations on the same topic of study.

3.4 Sample size and sampling technique

Sample size refers to the exact numbers of items (respondents) selected from the population to constitute a sample (Kamuzora and Adam, 2008). The sample size covered 30 students only and it involved both male and female students. The sample was obtained through stratified sampling,

which includes partitioning of the population into subclasses with notable distinctions and variances, therefore respondents were divided into 6 colleges. The stratified sampling method was useful as it will allow the researcher to make more reliable and informed conclusions by confirming that each subclass has been adequately represented in the selected sample. Then simple random sampling procedure was used to select 5 respondents from each of the 6 colleges to make a total of 30 respondents.

$$n = \frac{z^2 * p(1 - p)}{e^2} = \frac{(1.96^2 * (0.5(1 - 0.5)))}{0.032^2}$$

Where;

n is the sample size required, p is the degree of variability, z is the degree of confidence at 95% and e is the margin of error.

3.4 data collection method, research instruments and its measurements

Data was collected using surveys method. The data was collected using a questionnaire which comprise of questions that answer the questions related to the objectives of this study. The questionnaire was tested and checked by research supervisor (lecturer) validity prior to the administration.

The researcher used self-administered questionnaire which covered all the variables in the research. The questionnaire covered two sections, Section A covered of the first variable; sleep quality, items on this variable were measured on a 0-3 interval scale running from 0=not during the past month to 3=three or more times a week and it is measured on an instrument developed by Buysse and his colleagues at the University of Pittsburgh, (1988); Section B covered the second variable of psychological well-being and was measured on a scale developed by Carol D. Ryff, (1989) and this will be measured on a 6-point Likert scale and ranges from 1=strongly disagree to 6=strongly agree.

3.5 Quality control

The researcher ensured reliability by using instruments that were previously used by other researchers to carry out research and also make conclusions on the relationship of the variables in question, to test the validity of the research instrument, the questionnaire was prepared and submitted to my supervisor for verification and assessment for reliance on content.

3.6 Data Management and Analysis

The information provided by the respondents was cross checked, coded and edited accordingly. Coding information was done as follows; Sleep quality, items on this variable were coded from 0=not during the past month to 3=three or more times a week; psychological well-being will be coded from 1=strongly disagree to 6=strongly agree.

Data was analyzed using Statistical Package for Social Sciences (SPSS) to generate frequencies, percentages and inferential statistics (chi square and correlation) in response to the study objectives.

3.7 Ethical Considerations

The researcher made it clear that participation in the study is voluntary and that the respondent is free to decline or withdraw anytime during the research period.

The researcher was guaranteed the participants that their information shall never be made available to anyone who was not involved in the study and would remain confidential for the purposes it is intended for.

DATA ANALYS, PRESENTATION AND INTERPRETATION OF RESULTS

4.0 Introduction

This chapter ideally presents the data analysis and respective narratives from the tables, it consists of univariate and bivariate data analysis presentations as shown below.

4.1 Univariate analysis

4.1.1 Findings on people/s perception on sleep quality

Here different components of sleep that is subjective sleep quality, sleep latency, sleep duration, sleep efficiency sleep disturbance and sleep dysfunction were analyzed independently.

Table 4.1: people's perception on sleep components

Sleep components	Frequency	Percentage
Subjective sleep quality		
Very good	2	6.5
Fairly good	21	67.7
Fairly bad	7	22.6
Very bad	1	3.2
Sleep latency		
0	11	35.5
1-2	8	25.8
3-4	9	29.0
5-6	3	9.7
Sleep duration		
Above 7 hours	5	16.1
6-7 hours	13	41.9
5-6 hours	1	3.2
Below 5 hours	12	38.7
Sleep efficiency		
Above 85%	23	74.2
75-84%	4	12.9
65-74%	1	3.2
Below 65%	3	9.7

Sleep disturbance		
0	2	6.5
1-9	25	80.6
10-18	4	12.9
19-27	0	0.0
Use of sleep medication		
Not during past month	29	93.5
Less than once a week	1	3.2
Once or twice a week	0	0.0
Three or more times a week	1	3.2
Daytime disfunction		
0	2	6.5
1-2	19	61.3
3-4	8	25.8
5-6	2	6.5
Global PSQI Score		
Global score \leq 5 (better)	10	32.3
Global score $>$ 5 (worse)	21	67.7

Results from Table 4.1 above revealed that 67.7% of the undergraduate students who participated in this study had a fairly good overall sleep quality and only 3.2% had a very bad overall sleep quality.

More so, majority of the respondents had a sleep latency of 0 meaning that they have been falling asleep within 15 minutes not during past the month and the least had a sleep latency of 5-6.

The study findings also provided that during the past month majority of the students (41.9%) had actual sleep time at night of 6-7 hours followed by those whose actual sleep was less than 5 hours and the least had an actual sleep of 5-6 hours.

Also, majority of students who participated in this study had sleep efficiency greater than 85% meaning that a portion of 0.85 is spent asleep out of the hours spent in the bed.

The study findings also provided that most students (80.6%) who participated in the study had sleep disturbances of 1-9 and its clearly seen that most students (93.5%) have used sleep

medication not during past month. Lastly, respondents provided that they had a sleep dysfunction of 1-2 (61.3%) followed by that of 3-4 (25.8%).

Generally, majority of undergraduate students (67.7%) who participated in this study had a worse sleep quality (Global PSQI>5) and only 32.3% had a better sleep quality (Global PSQI score<=5).

4.1.2 Ryffs Psychological well-being Scales (PWB)

Here responses, varying from 1 to 6, for all seven items were added and the possible range of scores was from 7 (lowest possible) to 42 (highest PWB possible). A high score represents a person with many psychological resources and strengths.

Table 4.2: Psychological well-being among students

Psychological well-being dimensions	Mean	Std deviation	Minimum	Maximum
Autonomy	29.42	6.820	10	42
Environmental mastery	27.13	5.470	17	37
Personal growth	32.74	5.341	19	42
Positive relation	28.94	8.509	46	67
Purpose in life	31.94	5.372	21	42
Self-acceptance	32.19	12.616	15	30
Psychological wellbeing	Frequency		Percentages	
Low	1		3.2	
Moderate	17		54.8	
High	13		42.0	

Results from Table 4.2 above clearly show that generally on average undergraduate students had who participated in this study high psychological well-being (mean=29.42, 27.13, 32.74, 28.94, 31.94 and 32.19) for its dimensions that is autonomy, environmental mastery, personal growth, positive relations, purpose in life and self-acceptance. A high score on the personal growth dimension indicates feelings of personal stagnation, the sense that one is not improving or expanding over time, feelings of boredom, a lack of control, and a felt inability to develop new attitudes and behaviors.

Respondents' psychological well-being are at moderate and high level but largely at moderate level (54.8%). This shows that they are confident in voicing out their opinions even if goes against the majority and they can make sound judgement based on what they deemed important and does not influenced by others in making decision.

4.2 Bivariate analysis

4.2.1 Relationship between sleep quality and psychological well-being

Sleep quality was measured using PSQI sleep score categorized as better sleep quality and worse sleep score whereas psychological well-being was categorized as low, moderate and high which reflected the quality of life of people and results are shown in Table 4.3 below;

Table 4.3: PSQI score and Ryff's psychological well-being

PSQI sleep score	Ryff's psychological well-being			Chi square & P-Value
	Low	Moderate	High	
PSQI score \leq 5 (better)	0	3	7	Chi2=8.910 P=0.020
PSQI score $>$ 5 (worse)	1	14	6	
Total	1	17	13	

Results from Table 4.3 revealed that worse sleep quality is related with moderate psychological well-being and better sleep quality was majorly related with high psychological well-being. The association between sleep quality measured using PSQI sleep score and psychological well-being was significant evidenced with chi2=8.910, P=0.020 less than 0.05.

4.2.2 Relationship between psychological well-being and academic performance

Here psychological well-being was measured using its dimensions that is autonomy, environmental masters, personal growth, positive relations, purpose in life and self-acceptance and academic performance was measured using Cumulative Grade Point Average (CGPA).

Table 4.4: Pearson correlation matrix of psychological well-being and academic performance

		Autonomy	Environmental mastery	Personal growth	Positive relations	Purpose in life	Self-acceptance
CGPA	Correction coefficient	-0.004	0.097	0.105	0.366	0.502	0.091
	P-Value	0.089	0.011	0.003	0.041	0.026	0.017

Correlation analysis from Table 4.4 indicates that there is a significant relationship between psychological well-being and academic achievement, $r=0.131$, $p<0.05$. Based on Table 4.4, the result of this study shows that there is a positive correlation between the dimensions of psychological well-being which are environmental mastery $r=0.097$, personal growth $r=0.105$, positive relations $r=0.366$, purpose in life $r=0.502$ and self-acceptance $r=0.091$ with academic achievement. The association between dimensions of psychological well-being that is environmental mastery, personal growth, positive relations, purpose in life and self-acceptance and academic performance were significant since their P-values were less than 0.05.

There is a negative weak relationship between autonomy and psychological well-being evidenced with correlation coefficient of -0.004 and it also had no significant association with academic achievement since P-Value= 0.89 was less than 0.05.

4.2.3 Relationship between sleep quality and academic performance

The different aspects of sleep considered were overall sleep quality (OSQ), i.e., the Global PSQI score, sleep duration (SDU), sleep latency (SLA), use of sleep medication (USM), sleep efficiency (SEF), sleep dysfunction (SDF) and sleep disturbance (SDT). Academic performance was measured using Cumulative Grade Point Average (CGPA).

Table 4.5: Correlation matrix of sleep quality and academic performance

		OSQ	Global PSQI	SDU	SLA	SEF	DDT	SDF	USM
CGPA	Pearson correlation	0.721	-0.534	0.129	-0.166	0.097	0.031	0.224	-0.394
	Sig. (2 sided)	0.000	0.006	0.029	0.000	0.605	0.867	0.013	0.089

Results from Table 4.5 above revealed that there is a strong negative relationship between global PSQI score and academic performance evidenced with correlation coefficient of -0.534 . the association is significant (P-value=0.006 less than 0.05). this indicated that as sleep quality becomes worse the academic performance decreases.

Study findings also indicated that overall sleep quality (OSQ) has a strong association with academic performance evidenced with correlation coefficient of 0.721. The association was significant since P-Value=0.000 is less than 0.05. This implied that enough sleep leads to improvement in the academic performance.

Study findings also indicated that daytime dysfunction correlates weakly with CGPA scores (evidenced with correlation coefficient of 0.224. The correlation index is significant since P-value=0.013 is less than 0.05.

Also, study findings revealed that sleep duration has a significant weak positive association with academic performance evidenced with correlation coefficient of 0.129 and P-value=0.029 less than 0.05.

Generally, sleep latency, use of sleep medication, sleep disturbance and sleep efficiency did not influence academic performance of students as evidenced by their P-Values being greater than 0.05.

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents discussion of findings, a summary of the conclusions on the findings and recommendations basing on the results from the study

5.1 Discussion of findings

Study findings indicated that overall sleep quality has a significant strong association with academic performance. This implied that enough sleep leads to improvement in the academic performance. This was in agreement with the study that provided that inadequate sleep quantity had a negative effect on cognitive function and academic performance and overall sleep quality may have a more significant effect than quantity of sleep (Pilcher, et al., 1997). Lemma et al. (2012) reported that better sleep quality was significantly associated with better academic performance and poor-quality sleep showed no evidence of association.

This study examined the association between students' sleep quality measured using the Pittsburgh Sleep Quality Index (PSQI) and psychological wellbeing and the results showed a significant relationship between sleep quality and psychological well-being and students with better sleep quality had a high psychological well-being and it was in line with the study that provided that Chi-square analysis shows a significant association between sleep quality categories and psychological well-being categories ($p = 0.035$) and this meant that there is a significant difference in poor psychological wellbeing between good quality sleepers and poor quality sleepers Zhai et al., (2018). Likewise, the regression analysis results indicated that psychological wellbeing significantly predicts sleep quality ($\beta=0.751$, $p=0.02$). The p value is less than the set value 0.05 and this indicated that the association between sleep quality and psychological wellbeing is statistically significant Oluka et al., (2019).

More so, the study found out that the dimensions of psychological well-being that is environmental mastery, personal growth, positive relations, purpose in life and self-acceptance were significantly associated with academic performance. since their P-values were less than 0.05. A study by Hart (2016) showed that subjective well-being did not have a significant relationship with academic achievement which was in contraction with this study. This was in agreement with the study by Hinckle (1988) that reported that the correlation between psychological wellbeing and its dimensions with academic achievement is weak and also indicated that moderate correlation between psychological dimension purpose in life with self-accomplishment and environmental

mastery were significant with academic performance. It was also in line with the study by Khairani et al (2018) which showed that there was a moderate and positive relationship between social psychological functioning and academic achievement.

5.2 Conclusions

This study explored the association between sleep quality, psychological wellbeing and academic performance among undergraduate students. Most undergraduate students who participated in this study had a worse sleep quality since they had a high PSQI sleep score compared to counterpart. In conclusion, this study also indicated that students' psychological well-being is at a decent level. However, there is a small number of students who might need assistance because they have shown low level of psychological well-being

The study concluded that the association between sleep quality measured using PSQI sleep score and psychological well-being was significant. The study established that poor sleep quality was associated with poor psychological wellbeing and good psychological wellbeing was associated with good psychological wellbeing and the magnitude of effect was more substantial and significant for participants with better sleep quality.

The result of this study shows that there is a significant positive correlation between the dimensions of psychological well-being which are environmental mastery, personal growth, positive relationship with others, purpose in life and self-acceptance with academic achievement. In conclusion, this study shows that most students possessed positive attitude as well as accepting themselves, have control over their environment, self-autonomous, able to maintain positive relationship with others, have clear life meaning and goals as well as the presence of continuous personal growth and development. Low psychological well-being among students may cause unhappiness, dissatisfaction in life and low self-esteem which will brings the implication of them facing higher level of pressure.

The study also concluded that there is a strong relationship between global PSQI score and academic performance which indicated that as sleep quality becomes worse the academic performance increases. Also, overall sleep quality (OSQ) had a strong significant association with academic performance which showed that enough sleep leads to improvement in the academic performance. Sleep components that influenced academic performance included environmental mastery, sleep durability and sleep dysfunction.

5.3 Recommendations

This study recommended that university need to design continuous program to help students especially those who have low level of psychological well-being due to its relationship with academic achievement.

Based on the findings, the study recommends that students, lecturers, university counselors, wardens and matrons increase their awareness about healthy sleep patterns, sleep needs and consequences of poor sleep. This could be done through university-based sleep education programs, school magazines and assembly.

The School/university administrators should review and put into place policies that are sleep promoting. Suggestions include setting and enforcing quiet hours, reduced hours of operation of school/university activities during the late night or early morning hours and maintain regular bedtime schedule to give students the average eight hours of sleep.

Further studies should be conducted on causes and effects of poor sleep quality among undergraduate students to understand their psychological well-being and academic performance in other areas where it has not yet been carried out.

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