MENTAL HEALTH AND IDENTITY DEVELOPMENT AS CORRELATES OF ACADEMIC ENGAGEMENT AMONG THIRD YEAR UNDERGRADUATE STUDENTS IN KENYAN PUBLIC UNIVERSITIES

KOSITANY CONRAD

E83/39058/2017

A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY (EDUCATIONAL PSYCHOLOGY) IN THE SCHOOL OF EDUCATION, KENYATTA UNIVERSITY

AUGUST, 2024

DECLARATION

I confirm that this research thesis is my original work and has not been presented in any other university/institution for consideration for any certification. The thesis has been complemented by referenced sources duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other sources, including internet, these are specifically accredited and references cited in accordance with anti-plagiarism regulations.

Signature _____ **Date:** _____

Kositany Conrad E83/39058/2017

Department of Educational Psychology

We confirm that this thesis was carried out by the candidate under our supervision as university supervisors.

Signature _____ **Date:** _____

Dr. Tabitha Wangeri

Department of Educational Psychology

Kenyatta University.

Signature _____ **Date:** _____

Dr. Anthony M. Ireri

Department of Educational Psychology

Kenyatta University.

DEDICATION

This thesis is dedicated to my parents, Charles Kositany (late) and Betty for inspiring and educating me and to my dear wife Joyce and children Joy, Christian, Jean and Ceron for their prayers, words of encouragement, patience and understanding throughout the research period.

ACKNOWLEDGEMENT

I am grateful to the Almighty God for inspiring me to pursue this research and for keeping me in good health throughout my studies. I am thankful to my supervisors Dr. Tabitha Wang'eri and Dr. Anthony Ireri for their continued encouragement, support, mentorship and supervision which facilitated the timely completion of this thesis. I remain indebted to the former and current chairmen of the Department of Educational Psychology, Dr. Peter Mwaura, Dr. David Kariuki and Dr. Doyle Mugambi and all members of staff in the Department for their support and for providing an enabling environment and encouragement that helped me undertake this research work.

I appreciate Graduate School, NACOSTI, and the Commission for University Education for research authorization. My special appreciation goes to the Kenyan public universities where the data were collected. I also thank my fellow students especially Dr. Joan Mukami, Daniel Kinyua, Samuel Makori, Dr. Ruth Munanu and Dr. Martha Oigo who made this journey less lonely and provided the necessary support to complete this thesis.

My special thanks and gratitude go to my wife Joyce Rere and our children Christian Kiprob, Jean Chelangat, Ceron Kipruto and Joy Cheruto for their unconditional love and support. I also thank my age mate the late Dr. Caleb Kirui and friends Fred Kirui, Lepski Lekeren and Fred Marienga your input made my academic pursuit possible. To my family members, friends and countless other people for their support and constant encouragement, thanks a lot.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

ADUS	Alcohol Drug Use Scale
ASSIST	Alcohol, Smoking and Substance Involvement Screening Test
AUDIT	Alcohol Use Disorder Identification Tool
CUE	Commission for University Education
DASS-21	Depression, Anxiety and Stress Scale 21 Item
HADS	Hospital Anxiety and Depression Scale
DIDS	Dimensions of Identity Development Scale
LMICs	Low and Medium Income Countries
NACADA	National Authority for the Campaign Against Alcohol and Drug Abuse
NACOSTI	National Commission for Science, Technology and Innovation
NIDA	National Institute on Drug Abuse
NPS	Non-Prescription Stimulant
OECD	Organization for Economic Cooperation and Development
PHQ-9	Patient Health Questionnaire 9 item
PSQI	Pittsburgh Sleep Quality Index
SPSS	Statistical Package of Social Sciences
TAPS	Tobacco, Alcohol, Prescription Medication, and other Substance Use Tool
USEI	University Student Engagement Inventory
UWES-S	Utrecht Work Engagement Scale - Student version

ABSTRACT

The main goal of universities in Kenya is to bestow growth experiences, knowledge, skills, and education to their students, but low academic engagement hinders this goal. Low academic engagement in Kenyan universities could be linked to students' mental health and identity development. This study set out to determine the relationship between depression and academic engagement among third year undergraduate students in Kenyan public universities, establish the relationship between anxiety and academic engagement, find out the relationship between stress and academic engagement, determine the relationship between substance use and academic engagement, establish the relationship between identity development and academic engagement and establish how age, gender and year of admission moderate the relationship between mental health, identity development, and academic engagement. The study used predictive correlational research design to establish the relationships, and the degree of association among variables. The study was grounded on two theories; Five-dimensional Model of Identity Formation (Luyckx et al., 2008) and Tripartite Model of Anxiety and Depression (Watson & Clark, 1991). The study targeted 26,079 third year undergraduate students in the 2021/2022 academic year. In this study 415 participants were selected from the population using simple random sampling, stratified and purposive sampling. A pilot study involving 42 students was used to establish the reliability and validity of the research instruments. Data were analyzed using SPSS (v.25). Data were entered, coded and analyzed using t-test for independent samples, Pearson's product moment correlation coefficient and multiple regression analysis. Hypotheses were tested at $p = .05$. The study found a non-significant relationship between depression and academic engagement (r (413) = 0.01, $p > 0.05$). Anxiety and academic engagement related non-significantly (r (413) = 0.06, $p > 0.05$). A non-significant correlation was also found between academic engagement and stress (r (413) = 0.00, $p > 0.05$). A negative and statistically significant association was found between substance use and academic engagement (r (413) = 0.67, $p < 0.05$). A positive and statistically significant association was found between identity development and academic engagement (r (413) = 0.67, $p < 0.05$). Finally, age, gender and year of admission had a non-significant moderating effect on the relationships among mental health, student identity development and academic engagement (F (3,413) = 25.09, $p < 0.05$), (F (4,413) = 18.79, $p < 0.05$) and (F (5,413) = 15.02, $p < 0.05$) respectively. In conclusion, the negative and statistically significant relationship found between substance use and academic engagement and the positive and statistically significant relationship between student identity development and academic engagement imply their importance in academic engagement. The study recommended that, lecturers, administrators and all stakeholders should develop an environment that will improve mental health and identity development among third year undergraduate students.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter unveils the background to the study, the research problem, significance and the purpose of the study. It also presents the objectives and research questions that guided the research, the study limitations, assumptions and delimitations. It concludes by presenting the theoretical and conceptual frameworks as well as the operational definition of terms.

1.2 Background to the Study

Creating conditions that promote academic engagement in higher education is paramount for higher retention and overall academic success. Academic engagement is a construct that stresses students' investment, commitment, active participation and identification with school. Although academic engagement is diverse in its definitions and coverage, researchers agree that it is multidimensional and encompasses three aspects; behavioural, cognitive, and emotional engagement all operating together to enhance students' learning (Alrashidi et al. 2016; Phan, 2014; Zhoc et al., 2019). The behavioural dimension includes student's involvement in both extracurricular and academic activities. Behaviourally, engaged students attend all classes, concentrate and do their school work on time. Participation in extra-curricular activities and socialization in school lead to psychological wellbeing (Pachucki et al., 2015; Reis et al., 2015). The cognitive dimension explains student's mental effort to gain proficiency in difficult skills. Finally, the emotional dimension suggests student's reactions to other

students, school and teachers. Students who are not emotionally engaged are restless, irritable, lack concentration and are basically disinterested in school related activities.

Links between academic engagement and academic performance have been studied by scholars to enhance learning among students. According to Bond et al. (2020), the concept and measurement of academic engagement has become a major area of interest for psychologists, researchers and policy makers alike. Academic engagement has been identified as having a great influence on learning and academic achievement among university students (Wara et al., 2018). Exetera et al. (2010) explain that academic engagement can be measured by energy, time and resources spent to boost university learning. More recently, Miranda et al. (2020a) describe it as a persistent, positive, cognitive and emotional state related to a specific task. Further, Schaufeli and Bakker (2003) as cited by Bernardo et al. (2022) posit that engagement is a depiction of motivation generated from students' competence, confidence and positive relationships during learning.

Hudson (2015) concurs with the assumption that high rates of academic engagement lead to increased knowledge and understanding. Institutions with highly engaged students are deemed to be of a higher quality. Engagement shapes students into innovative problem solvers and independent thinkers, this could promote future career transition. Certain learning styles and teaching methods help learners increase engagement (Hudson & Carrasco, 2017). Different teaching methods should be utilized because some students learn better through doing and others by hearing (Rejnö et al., 2017). Peer support teams have also proved to be a core aspect in improving engagement. On the contrary, a lack of engagement leads to absenteeism, poor examination results, delayed graduation, attrition and an increase in dropout rates in the universities. Literature attests to low academic engagement and high dropout rates both

globally and locally. When students are not engaged they eventually drop out of university. So there is a direct relationship between academic engagement and dropout from university.

According to Bernado et al. (2022), Spain had the highest dropout rate in Europe with 30.5% of students who do not graduate. Organization for Economic Cooperation and Development (OECD) data confirms that dropout rates rose to 64.5% in 2018 compared to 35% in 2005. Spain was followed closely by Canada, Ireland, and the United Kingdom (Ministerio de Universidades, 2021). Similarly, Hungary, Sweden, Slovakia, Luxembourg and Czech Republic had high rates (OECD, 2018). Historically, Latin America is known to have a high dropout rate of 54 percent (Becerra et al., 2020). Africa experiences a similar situation, with high drop-out rates attributed to soaring student numbers, low funding, overcrowding and deeply inadequate resources (Blakcori, 2019). In Kenya, attrition rates of up to 37% were observed in universities in Nairobi County (Njoroge et al., 2016).

Over the last few decades, research has focused on impact, quality and outcomes of higher education and concerns raised on high dropout rates (Burke, 2019; Crosling, 2017) which have risen in part by financial implications, civil rights of disadvantaged students and an increased demand for accountability from universities (Beer & Lawson, 2016; Crosling, 2017). Institutions that are rated highly are those that have incorporated student retention and academic engagement as part of their student operations, policy and strategic plan. (Beer & Lawson, 2016).

Success in university education requires from the student time and hard work. The government also invests a lot of money to run the universities. The budget allocation to education increased by 16% from Ksh. 544.4 billion in 2022/23 to KSh. 628.6 billion in 2023/24 representing

27.4% of planned national expenditure. When the educational sector underperforms it is a great loss to our country financially and a step backwards in achieving Vision 2030. Student engagement is thus an important construct to explore in pursuit of a detailed, expansive and holistic understanding of what the students go through in the university and a pertinent factor for learning outcomes in higher education (Delfino, 2019).

In the pursuit of understanding the problem of academic engagement in universities, several variables have been identified as correlates. Among them are mental health; depression, anxiety, stress and substance use and identity development. According to Gulliver et al. (2022), there is a high level of psychological distress and prevalence of mental disorders among university students in the whole world. An international research was done on mental disorders among university students in eight countries, 19 universities and among 14,000 students. The study included a world mental health survey that found that 35% of students had one or more mental disorders (Auerbach et al., 2016). The mental health ailments affected students wellbeing leading to low academic performance and a higher chance for students to drop out of university. (Hysenbegasi et al., 2005).

Talwar et al. (2016) assert that stress, anxiety and depression are a major mental health problem among university learners. These conditions may greatly affect the students' psychological wellbeing. Miranda et al. (2020b) further explain that mental health can affect students adversely reducing their cognitive, emotional, physical, emotional and cognitive resources necessary for engagement. One major outcome of student engagement is wellbeing, which can alleviate stress, anxiety and depression of tertiary students (McIntyre et al., 2018). Some of the negative outcomes of disengagement include, absenteeism, failure to do continuous assessment tests and exams which lead to poor performance and alienation (Boulton et al., 2019). Research

has shown that academic engagement is affected by students' mental health. The specific components of mental health that are of interest in this study are depression, anxiety, stress and substance use.

In Africa, a study done in 30 predominantly Low and Medium Income Countries (LMICs) found high depressive and anxiety symptoms among university students (Bantjes et al., 2016; Peltzer & Pengpid, 2017). In South Africa research by Maunze et al. (2020) found that lack of internal branding had no effect on academic engagement. In Ghana, Essiam (2019) found that student learning experience, student experience with faculty, academic challenge, lecturer feedback and learning with peers significantly predicted student engagement. Some of these research variables are aspects of identity development.

Mental health generates fear, stress, insomnia, mood changes and anxiety which consequently affect student engagement (Altena et al., 2020; Sher, 2020). According to McFarland et al. (2018) lack of academic engagement leads to dismal academic performance, lacking motivation, and high dropout rates. Webb et al. (2017) explain that there has been a shift of focus by institutional and government policy, from inclusivity of minority groups to student retention and employability. However, emphasis is now placed on student retention and graduate employment. Further, due to detriments of university dropout, researchers have sought to determine causes and effects of the phenomenon in recent years.

In Kenya, university students were found with moderate or severe depressive symptoms (Othieno et al., 2015; Peltzer et al., 2013). In different situations, students need to use adaptive coping strategies to avoid stress, anxiety and depression (Ribeiro et al., 2017). Social stigma also had an impact on mental illness (Al Ali et al., 2017) which may prevent students from

seeking help. The effects of stress among university students are physical and psychological, and there is evidence that it may cause reduced student engagement (Beiter et al., 2015; Singh et al., 2015). Student engagement has also been studied with student retention by Ndege (2010) and results show that active student faculty interactions, collaborative learning and positive campus environment have significant impacts on student engagement and consequently retention.

Substance use impacts on academic engagement. Latest research reported by National Institute on Drug Abuse (NIDA) (2020) showed that marijuana distorts perception, impairs short-term memory and judgment of maturing young adults and has negative effects on cognitive development. According to Lum et al. (2009) as cited by Htet et al. (2020) addictive behaviours like alcohol and drug use can be intensified by the university environment. Several studies have also linked marijuana use to mental health, specifically psychiatric disorders and psychosis (Alcorn et al., 2019; NIDA, 2021; Vujanovic et al., 2016); depression (Schoeler et al., 2016a), medical co-morbidities, social and neurocognitive impairments (Blest-Hopley et al., 2019; Hasin & Walsh, 2020; Schoeler et al., 2016b), anxiety (Leadbeater et al., 2019) and substance use disorders (Tomacruz, 2018). The most predominantly used illegal drug in Kenya and globally is *Cannabis Sativa* (National Campaign against Drug Abuse Authority NACADA, 2007). According to Bachman et al. (2008) as cited by Bugbee et al. (2019) many researchers concur with the fact that alcohol and drug use and academic engagement are related bidirectionally.

Proper identity development is important since there is evidence that academic identity is linked to academic achievement (Ireri et al. 2015). It has been noted that many individuals take up to early adulthood to achieve mature identity. (Branje & Koper, 2018; Van Doeselaar et al.,

2018). Confirming this identity maturation process marked by changes in exploration and commitment processes, interpersonal identity domains and education have been found to develop way into early adulthood (Albarello et al., 2018). Students aged 18–23 years show growth in identity commitment especially in identity domains like parent, teacher, intimate relationships, and education (Kunnen, 2021). Similarly, social and personal identity may complement each other and feature in the students' self-image (Crocetti et al., 2018) and identity development (Galliher et al., 2017).

Research on dimensions of identity development has been multifaceted, including assisting to track university students' identity formation (Galliher et al., 2017), safe environment for exploration (Sugimura et al., 2021), learning (Peters & Pears, 2013), sense of well-being, functioning (Adler & Seligman, 2016) and specific micro-level behaviours that build up student identity (Klimstra & Schwab, 2021). Identity development that was measured by the five-dimensional model of identity formation by Luyckx et al. (2008). This paradigmatic process proposes that identity is vigorous and has five dimensions; exploration in depth, commitment making, exploration in breadth, identification with commitments and ruminative exploration (Beyers & Luyckx, 2016).

Third year undergraduate students were targeted in this study because they fall in a critical stage of university education. Third year is the time to think seriously about expectations for the final year and the future. Diligence on how to manage time and resources in third year is important because the students' actions affect the final year performance and future. The students feel stressed, overwhelmed and anxious during this stage leading to mental illness. They also suffer progression effect of drug use that leads to drug addiction and are disadvantaged due to an improper identity development formation.

Although there is literature on mental health, identity development and academic engagement, studies that specifically address the relationships among the variables is lacking. There is therefore, a dearth in research on the relationship among mental health, identity development and academic engagement. This research sought to address this gap in knowledge by examining the associations between mental health, identity development and academic engagement and to determine how age, gender and year of admission moderate these relationships.

1.3 Statement of the Problem

Academic engagement has serious effects on educational outcomes. Undergraduate students are affected adversely by transition from secondary school where all the work is closely supervised to university where there is a lot of freedom and the assumption that learners are adults and should be self-driven.

Globally and locally academic engagement is a problem as evidenced by high dropout rates in universities. According to data from the OECD dropout rate rose to 64.5% in 2018 compared to 35% in 2005. In Kenya, dropout rates were reported by Faraj et al. (2017) as being high in Uasin Gishu County, Kenya. The same applies to private universities in Nairobi County, attrition rates of up to 37% were reported (Njoroge et al., 2016).

The Kenya government stopped funding for students who have exceeded their minimum graduation time. This will lead to termination of studies for a large number of students in Kenyan public universities which in effect will increase the dropout rate even further (Odhiambo, 2021). For example, in 2022 University of Nairobi deregistered over 30,000 students who had overstayed for more than double the period normally required to complete a

degree program. This reduced the number of enrolled students from 80,000 to 50,000 (37.5%) including those who have temporarily withdrawn or deferred their studies indefinitely and those who had been discontinued for failing examinations (Wachira, 2022). Other than the students who had financial challenges most of them were due to low academic engagement.

Depression, stress and anxiety are mental conditions that are prevalent among university students. These cause substance use, which in advanced stages lead to addiction and alcohol and drug use disorders. Students who do not rate highly in dimensions of identity development may also experience a stagnation in this developmental stage prior to adulthood. All these cumulatively lead to low academic engagement which consequently leads to missing classes, poor preparation for examinations, engaging in unhealthy lifestyles, engaging in substance use, low academic performance, delayed graduation, dropping out of university and in extreme cases suicide. Persistent poor academic engagement leads to diminished skilled human resources required for development.

This study proposed that if mental health and dimensions of identity development are studied, knowledge accruing thereof could be manipulated to enhance academic engagement. The central problem of this research, therefore, was to establish the magnitude to which dimensions of identity development and mental health are related to academic engagement. This study may provide local empirical data that was the missing connection needed to address issues of poor student academic engagement.

1.4 Purpose of the Study

This research purposed to find out if mental health and student identity development correlate with academic engagement among third year undergraduate students in Kenyan public universities.

1.5 Objectives of the Study

The research was directed by the following objectives:

i. Determine the relationship between depression and academic engagement among third year undergraduate students in Kenyan public universities.
ii. Establish the relationship between anxiety and academic engagement among third year undergraduate students in Kenyan public universities.
iii. Find out the relationship between stress and academic engagement among third year undergraduate students in Kenyan public universities.
iv. Determine the relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities.
v. Establish the relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities.
vi. Establish how age, gender and year of admission moderate the relationship between mental health, identity development and academic engagement among third year undergraduate students in Kenyan public universities.

1.6 Hypotheses

The research was directed by the following research hypotheses:

H_{a1}: There is a relationship between depression and academic engagement among third year undergraduate students in Kenyan public universities.

H_{a2}: There is a relationship between anxiety and academic engagement among third year undergraduate students in Kenyan public universities.

H_{a3}: There is a relationship between stress and academic engagement among third year undergraduate students in Kenyan public universities.

H_{a4}: There is a relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities.

H_{a5}: There is a relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities.

H_{a6}: There is a moderating effect of age, gender and year of admission on the relationships among mental health, identity development and academic engagement among third year undergraduate students in Kenyan public universities.

1.7 Assumptions of the Study

It was assumed that the variables under study were related and influenced each other in the direction indicated by the theoretical framework. The study also assumed that since the selected universities were all public, the students had relatively the same experiences relating to the variables. The study assumed that the respondents gave honest responses when filling the questionnaires. The researcher assumed adaptation of research instruments previously used among populations in the western world would still produce valid and reliable data in Kenya.

1.8 Limitations of the Study

This study was hindered by the research design as correlation does not infer causal relationships. The researcher relied on self-report questionnaires which may have had some degree of subjectivity, nonetheless, it was preferred to other methods because it proved to be one of the quickest methods of data collection. However, respondent bias was considered and dealt with during questionnaire design and in data collection. Additionally, some students failed to respond to all the questions but such questionnaires were not used for analysis.

1.9 Delimitations of the Study

The research limits were fixed to third year undergraduate students in public universities thus excluding other students. Though there are many psychological constructs that may predict academic engagement, this study focused only on mental health and identity development. Mental health was only studied on the aspects of depression, anxiety, stress and substance use. Dimensions of identity development was studied under Five-dimensional model of identity formation. The study used mainly close-ended Likert scale responses which gave little flexibility for probing, but the instrument was clear and easy to fill, hence increased the response rate.

1.10 Significance of the Study

Universities may be informed by this study to foster an academic setting that increases academic engagement by reducing substance use and improving identity development among the students. The findings may also inform mental health and substance use prevention interventions that aim at increasing academic engagement. This is critical since the results of the research stipulate a significance in both the associations among mental health, identity

development and academic engagement. Outcomes of this study may contribute to knowledge and information on academic engagement, particularly when mental health and identity development are studied together. In addition, the study may inform future studies that wish to establish the associations among the study variables.

1.11 Theoretical and Conceptual Framework

1.11.1 Theoretical Framework

The research was directed by Five-dimensional model of identity formation and Tripartite model of anxiety and depression.

(a) Five-dimensional Model of Identity Formation (Luyckx et al., 2008).

Developing an identity is a pertinent developmental task in adolescence and early adulthood. (Arnett, 2000) Mental ill-health tends to depict among adolescents and young adults leading to major mental health conditions later in life (Pine et al., 1998; Zizook et al., 2007), it is therefore important to critically analyze and understand the relationship between identity development and mental health at this crucial developmental stage.

Proponents of identity describe it as a dynamic process with five dimensions; Commitment Making, Ruminative Exploration, Identification with Commitments, Exploration in Depth and Exploration in Breadth (Luyckx et al., 2008). Exploration in Breadth is a concept that seeks to question available identity alternatives, Exploration in Depth is a comprehensive evaluation of available identity commitments (Luyckx et al., 2006). Commitment Making represents conformity to and implementation of values and goals, Identification with Commitment is ownership of the choices and commitments that one has chosen. Luyckx et al. increased the four-dimensional identity model by adding Ruminative Exploration. This was a dimension that

brought in reconsideration so as to be certain that the identification process was reached with a certain level of confidence.

These aspects explain two stages in identity development. In the initial round, adolescents make initial commitments by exploring different options during formation. In the second round, adolescents will either begin a new commitment formation round or identify with the initial commitments after exploring these particular options in depth. This stage is identified as commitment evaluation.

Five-dimensional prototype of identity formation has been instrumental, useful and effective in explaining developmental processes. This theory has been used by Mastrotheodoros and Motti-Stefanidi (2017) among Greek students to test the suitability of Dimensions of Identity Development (DIDS). Although this theory is used mainly to explain the concept of dimensions of identity development it also explains students' mental health (Keles et al., 2020; Pfeifer & Berkman, (2018). If students record low scores in dimensions of identity development, then it will lead to academic disengagement. The study hypotheses will be formulated based on the above theory, which explains that mental health and identity development may lead to low academic engagement.

(b) Tripartite Model of Anxiety and Depression (Watson & Clark, 1991).

This model was used to elucidate mental health. It divides the symptoms of depression and anxiety into three groups; positive affect, negative affect and physiological hyperarousal (Clark & Watson, 1991). Negative affect of anxiety-depression comorbidity includes restlessness, insomnia, poor concentration, irritability, increased alcohol and drug abuse, suicidal ideation and conduct disorder (Watson et al., 1995). However, physiological hyperarousal only depicts

in anxiety disorders with symptoms including, feeling dizzy, shortness of breath, dry mouth, sweaty palms and trembling (Watson et al., 1995). Finally, positive affect reflects one's pleasurable engagement with the environment (Clark & Watson, 1991). High positive affect include; interest, enthusiasm, mental alertness, adventurousness and activeness while low positive affect characterizes depression (Gençöz, 2002). If a student suffers from mental health, then they are prone to academic disengagement.

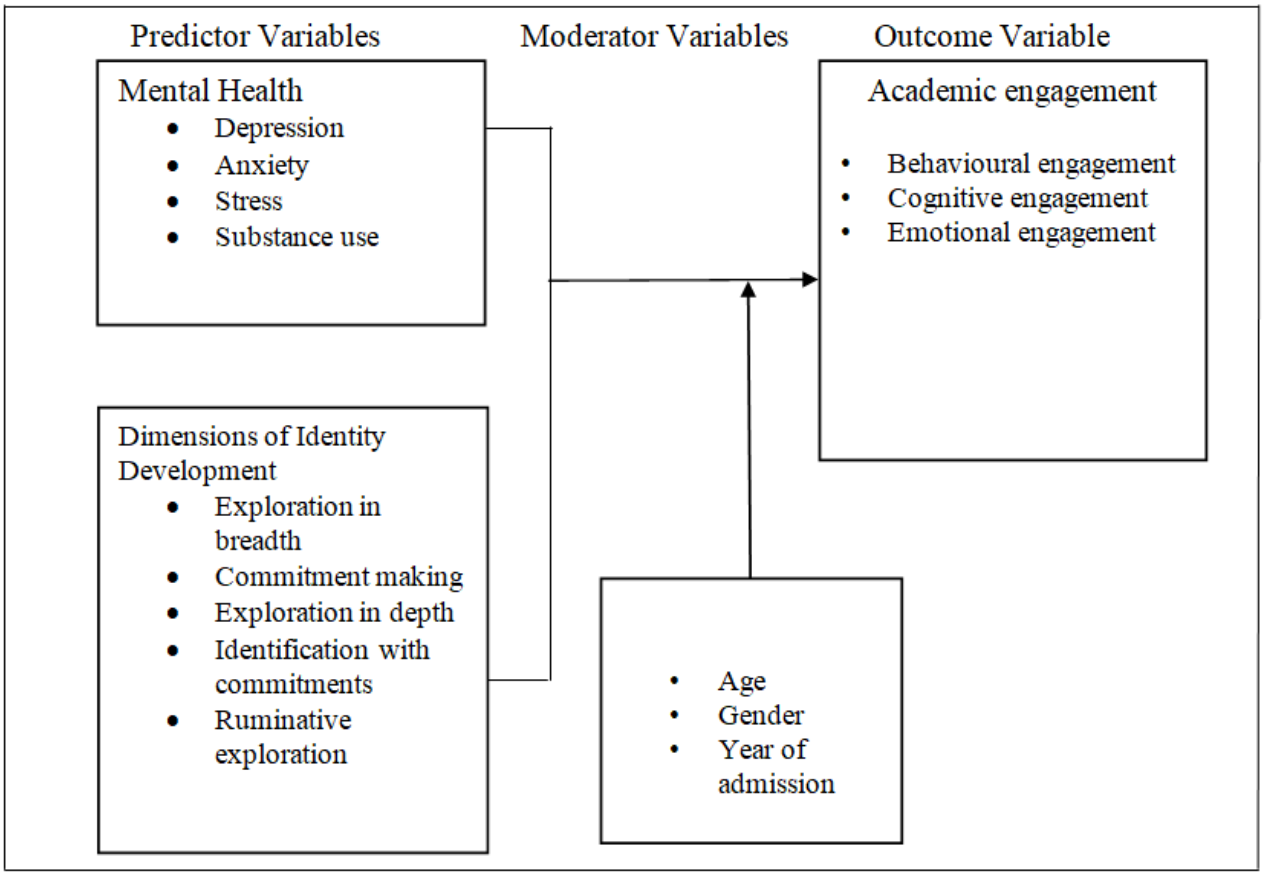
Five-dimensional prototype of identity development and tripartite model of anxiety and depression were important to the study as they explained probable correlations between the variables. If the students do not achieve identity development, then they suffer mental illness explained by tripartite model of anxiety and depression and consequently academic disengagement.

1.11.2 Conceptual Framework

Figure 1.1 illustrates the research variables as well as the hypothesized relationships among the study variables. The two predictor variables were mental health and identity development. Mental health was at four levels namely, depression, anxiety, stress and substance use. Five levels of DIDS; identification with commitment, exploration in depth, ruminative exploration, exploration in breadth and commitment making were used. The outcome variable was academic engagement. The moderator variables were age, gender and year of admission. Students' academic engagement was hypothesized to be influenced by students' mental health and dimensions of identity development.

Figure 1.1

Conceptual Framework of Interrelationships between the Research Variables



Note: ⟶ Anticipated relationships

1.12 Operational Definition of Terms

Academic Engagement Academic engagement is a construct that includes students' investment, commitment, identification with school and quality of participation. It was measured through a participant's score in University Student Engagement Inventory (USEI). Scores ranged from 15-75; low engagement to high engagement.

Anxiety An emotion where students have feelings of tension, physical changes and worried thoughts as measured through a participant's score in the 7 items of anxiety in DASS-21. The extent of scores was from normal 0-7 to extremely severe 20+.

Depression A serious mental illness that negatively affects thinking, how you feel and how you act. It was measured through a participant's score in the 7 items of depression in DASS-21. The extent of scores was from normal 0-9 to extremely severe 28+.

Identity Development A development process for university students informed by Five-dimensional model of identity formation and measured through a participant's score in DIDS. The higher points indicated high student identity development.

Mental Health It refers to a state of wellness free from depression, anxiety stress and alcohol and drug use. It was measured through a participant's score in the items of DASS-21 and Alcohol and drug use scale.

Stress	It refers to an unpleasant emotional state characterised by predictable behavioural, biochemical and physiological changes that can lead to health consequences. It was measured through a participant's score in the 7 stress items of DASS-21. The extent of scores was from normal 0-14 to extremely severe 34+.
Substance Use	A pattern of consumption of drinks that contain ethanol and psychoactive substance use that leads to increased health risk, distress, addiction and social problems. It was measured through a participant's score in the Alcohol and drug use scale. Scores ranged from 4 indicating never used any of the drugs to 16 indicating daily use of all drugs.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The chapter focused on reviewing related literature on the relationships among mental health, identity development and academic engagement. The section critiques assorted scholarly works on how academic engagement relates with mental health and identity development. The section also reviews how moderating variables of age, gender and year of admission are linked to academic engagement. A synopsis of the literature review and gap identification is also presented.

2.2 Relationship between Depression and Academic Engagement

Empirical studied have produced mixed results on the association between mental health and academic engagement. Most research has addressed academic performance and there exists a dearth of research on depression and engagement. Most of the studies have been done on prevalence of mental health in universities. According to Primary Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) depression disorders criteria for adults, the symptoms of depression are; markedly diminished interest in most or all activities, depressed mood, weight/appetite loss or weight/appetite gain, insomnia, reduced thinking ability or concentration, indecisiveness, fatigue, psychomotor retardation, and finally recurrent thoughts of death, or suicidal ideation. Depression symptoms usually are severe enough to cause problems in daily activities including work, school, and social life as reported by the American Psychological Association APA, (1994).

In a study done in Ethiopia, Bitew and Birhan (2021) did a cross sectional research purposed to establish consequences of depression on educational outcomes among university students. A sample of 710 pre-engineering students in Northwest Ethiopia was used. A locally validated Patient Health Questionnaire (PHQ-9) was utilized to test depression (Peters et al. 2021). The study also established the specific substances used by students. Multivariate linear regression was used to test if depressive symptoms led to academic performance and learning difficulties. Results showed that an increase in substance use and depression scores were positively correlated with learning difficulties. The current study used DASS-21 to measure depression and also probed substance use and had academic engagement as the dependent variable.

Research has shown that depression affects academic engagement and other educational outcomes. A study by Chaudary (2016) explored the determinants and frequency of mental health among university students and its ramifications on academic performance and well-being in Pakistan. A sample of 1308 randomly selected students 15-29 years old from three public universities was used. Results showed that income insufficiency and gender were significantly related to depression. Students with high levels of depression had poor academic performance. However, the current study used DASS-21 to measure depression, an aspect that is lacking in the foregoing study. This reviewed research was undertaken in Pakistan, Asia, whereas this study was done in Kenya, Africa. Disparities in the two continents justified the study to see if results were similar. The current study found a high prevalence of depression though there was a non-significant relationship with academic engagement.

Cleofas (2019) conducted a study at a university in Philippines that sought to determine the relationships between mental health, student involvement and quality of life among undergraduate students. This study utilized a descriptive cross-sectional correlation model on

249 students selected for the study. Four tools were used; Demographic questionnaire, Mental health inventory, Student involvement questionnaire and Youth quality of life-short form. The findings indicated that school involvement was associated with general positive affect, life satisfaction and depression. Similarly, Gregans and Graham (2013) studied depression in adolescence and how it relates with student's ability to engage in learning. They hypothesized that depression leads to low academic engagement. The research utilized a sample of 174 (51% female) grade six learners. Results showed that depression had an outstanding association with academic engagement and depression accounted for 68% of the influence on academic engagement. While these reviewed studies used smaller samples of 249 and 174 students the present study used 422 third year undergraduate students from four Kenyan public universities. The foregoing studies negated the outcomes of the ongoing study.

A cross sectional study was done in Cameroon, Africa by Ngasa, et al. (2017) with the topic; prevalence and factors related to depression among medical university students in Cameroon. It was done in four government medical schools in four regions in Cameroon in 2015 and 2016 among a sample of 618 learners. The 9-Item-Patient Health Questionnaire (PHQ-9) was used for Depression diagnosis and to assess the associated factors a structured questionnaire was used. Results showed that 30.6% were diagnosed with major depressive disorder and 34.6% had mild, 26.4% moderate, 3.4% severe and 1% had severe depression. There was a non-significant relationship between depression and academic performance. In the foregoing study, though academic engagement is not directly research on, inference can be drawn because strong and significant relationship has been found between academic engagement and academic performance.

In a study done in Norway that directly addressed depression and academic engagement, Garvik et al. (2014) sought to find out the interactions of depression with school engagement. A sample of 791 students (15 to 18 years) was used in a Norwegian upper secondary vocational school. The findings indicated that depression had a non-significant relationship with academic engagement. It was concluded that depressed students managed to maintain their engagement. The foregoing study differed from the ongoing study in relation to age and the stage of education of students. The reviewed study used 15-18 years old students in secondary school while the current study was done among 20-28-year-old undergraduate university students in year three of study. The outcomes of the foregoing research concurred with the ongoing study that found a non-significant correlation between stress and academic engagement.

Many of the studies reviewed for this research did not concur with the outcomes that depression had a non-significant association with academic engagement. Although most studies did not address depression directly, it can be inferred from the varied variables. A study in Argentina by Scotta et al. (2022) aimed at examining the associations between insomnia, coping strategies, worry and academic engagement among university learners during month one of compulsory isolation as required during the COVID. Outcomes of the research showed widespread presence of mild forms of insomnia which led to low academic engagement. In Japan and China, Jiang and Tanaka (2022) sought to determine how autonomy support from staff at university relates with academic engagement. Results showed a positive association between autonomy support and academic engagement. However, a negative association was found between depression and academic engagement. The current research was anchored on the Five-dimensional model of identity development and Tripartite theory of depression and anxiety unlike the foregoing study that used Self-determination theory.

Studies on prevalence were the most encountered, in India Sandal et al. (2017) studied correlates and frequency of stress, depression and anxiety on learners of Punjab University. Results showed a high prevalence of stress, anxiety and depression which decreased with age while morbidities were less in males. It was concluded that poor mental health awareness, limited youth-based services and stigma related to mental disorders work together to make the youth the most underprivileged population in India. The foregoing study dealt with prevalence in India while the present study determined the correlation between mental health, identity development and academic engagement in Kenya.

Similarly, the interrelationship between depression and academic engagement can also be inferred from research undertaken by Lun et al. (2018) in Hong Kong. Their main objective was to establish the frequency and factors related to depression and anxiety among undergraduates in Hong Kong. The researchers used a cross-sectional design and questionnaires filled by 1200 students from eight universities who completed a questionnaire with 9 items for depression in a patient health questionnaire, 7 items to rate generalized anxiety disorder, and items to capture demographic information. Results indicated a 75% prevalence of depression at different levels. The current study used DASS-21 to measure anxiety, depression and stress, an aspect that is lacking in the preceding study. This reviewed research was done in Hong Kong, Asia, whereas the present study was done in Kenya, Africa. Disparities in the two continents justify the study to see if results will differ.

Regionally, in Uganda Kaggwa et al. (2022) did a cross-sectional study that sought to examine frequency and related factors of depression and suicidal ideation among undergraduates. A sample of 540 (363 males and 177 female) students from four universities was used. The PHQ-9 was utilized for depression, and suicidal ideation was measured by Item 9. Results showed a

high prevalence of depression and suicidal ideation. Over half of the students who had depression also tested positively for suicidal ideation. It can be inferred from this study that if students are engaged, then they perform better and consequently reduce the risk of depression. Those with financial challenges and smokers had a high level of suicidal ideation. This study brings up the severity of mental health which is suicidal ideation, it also brings in the connection between substance use, smoking and financial tuition constraints. The foregoing study variables are fairly similar to the current study as they share depression, substance use and financial tuition constraints. However, the study will be done in a different cultural context in Kenya.

2.3 Relationship between Anxiety and Academic Engagement

A study across two continents by Ng et al. (2022) negates the findings of the ongoing studious inquiry. The research was done in Hong Kong and Australia on the ramifications of sleep and anxiety on academic engagement among university students. The major objective was to explain how sleep hygiene and anxiety induced sleep standard may result in poor academic engagement. A sample of 614 Participants (Hong Kong n = 285 and Australia n = 329) and a correlational design was used. At Time one, sleep standard was rated with the Sleep Hygiene Index (SHI) and anxiety rated by anxiety items in DASS-21. After a month at Time 2, Pittsburgh Sleep Quality Index (PSQI) was used to measure sleep standard and the summarized Utrecht Work Engagement Scale - Student version (UWES-S) was utilized to measure academic engagement. The association between academic engagement and anxiety was significant. The current research used a similar scale as the foregoing study in measuring anxiety but the academic engagement scale used was University Student Engagement Inventory (USEI) unlike UWES-S in the foregoing study.

In China Mou et al. (2022) researched with college students on the correlation between anxiety and academic engagement and found that anxiety was significantly associated to academic engagement. The research used Liebowitz Social Anxiety Scale, UWES-S, PSQI and the Bergen Social Media Addiction Scale. It was therefore concluded that better sleep and management of social media addiction for students with social anxiety raised academic engagement.

According to Nakhla (2019) in the association between academic motivation, student engagement and fear of failure in university, anxiety may not have featured but can be inferred from fear of failure. Self-report instruments were utilized for data collection. The outcomes of the study suggested that fear of failure had an effect on engagement. The current study used depression, anxiety, stress and substance use as indicators of mental health, a deeper and more comprehensive coverage unlike the foregoing study that studied fear of failure which is a fairly general term.

Abu Ruz et al. (2018), did research with a goal of determining the effect of depression, persistent anxiety on nursing students' absenteeism rate and academic achievement. Correlational research design was utilized and 170 nursing students were sampled from a private university in Amman, Jordan. The tool used to measure anxiety was Hospital Anxiety and Depression Scale (HADS). Research findings showed that incessant anxiety and absenteeism impacted on academic achievement of the students, a result that negates the outcomes of the current study, anxiety had a non-significant association with academic engagement. The foregoing study was done in a single faculty among graduate nursing students and used HADS for hospital anxiety while the current study used a larger sample, 422 third

year undergraduate students from all schools. This increased the generalizability of the findings.

Research done in Canada by King et al. (2021) on academic outcomes and mental health at the beginning year at university negated the findings of this study. The objective was to compare international and domestic students in terms of mental health, associated risk factors and academic outcomes. Results showed that international learners had lower rates of anxiety, depression, and insomnia than domestic students. It can be deduced therefore, that the international students' anxiety significantly affected academic engagement and consequently academic performance.

Another study done in Arabia by Asghar (2015) used Anxiety scale from DASS-21 and UWES-S on a sample of 492 female learners from a private university in Jeddah. The researchers discovered that learners have low anxiety and that engagement was significantly correlated to anxiety. The outcomes of this study suggested that students with low anxiety levels tend to be engaged. They used survey research method and data collected from a sample of 500 students from three universities. Anxiety was quantified by the use of DASS-21. Results revealed a high prevalence of anxiety among university students.

Most studies on anxiety dwelt on rates of anxiety, stress and depression. In Pakistan Asif et al. (2020) researched to establish anxiety, stress and depression prevalence among university learners, results found high occurrence of all three. Locally, in Kenya Osborn et al. (2019) researched on prevalence of depression and anxiety among high school learners in Kenya. They administered questionnaires on depression and anxiety symptoms, life satisfaction, social support and gratitude to 658 high school students aged 13 to 19. Results indicated high levels

of depression and anxiety. Unlike the foregoing study the current study used correlational research design which sufficiently measured the degree to which relationships existed among mental health, identity development and academic engagement. The study also used a younger sample 13-19 years while the current study used third year undergraduate students aged 20-28 years.

2.4 Relationship between Stress and Academic Engagement

Amponsah et al. (2020) undertook research to probe the coping approaches used by teacher education students to deal with stress in Ghanian University. A sample of 270 third year undergraduate students filled the Dental Environmental Stress (DES) questionnaire. The results showed three major stressors; limited supply of water and power in halls, changes in sleeping and eating habits and working to keep up with academic requirements. Learners used avoidance and adaptive coping strategies. Unlike the foregoing study that had a smaller sample of 270 in one university, the current study used a larger sample of 422 third year students from four public universities which increased generalizability of the study findings.

In Kenya Oboth (2018) studied the association between stress level, psychosocial adjustment and academic achievement on students of the University of Nairobi. The major goal was to address stress and its correlation to academic performance. Descriptive cross-sectional design was utilized by the research on a sample of 584 students which comprised of 319 males and 265 females. Qualitative and quantitative methods were used. The findings indicated that the correlation between psychosocial adjustment, stress and academic performance was influenced by age, locus of control, gender, level of study and course of study. Unlike the foregoing study

that addressed stress level, psychosocial adjustment and academic performance, this research sought to explain the correlation between stress and academic engagement.

The current research realized a non-significant interrelationship between stress and academic engagement. A result that concurs with a study by Young (2017) with a main objective to examine stress levels and students' engagement at Eastern Illinois University. A sample of 168 students were selected for this descriptive study. Stress was measured by Student-Life Stress Inventory and results showed no statistical significance between stress and academic engagement. Similarly, Nelson (2018) posits that academic engagement is a major ingredient for academic success including degree completion. The research explored the relations between stress and the intrinsic aspects of academic engagement; effort, attention, note-taking, attendance, and asking for help. Also included are the four factors of undergraduate engagement; emotional engagement, skills engagement, performance engagement and participation engagement. The results showed that there was no relationship between stress and academic engagement. This concurs with the ongoing study findings that stress had an inconsequential relationship to academic engagement.

Several studies negate the findings of this research that show that stress had a significant correlation with academic engagement. In Peru Latin America, Oliver et al. (2021) did a study among medicine students in a private university on stress, procrastination and academic engagement. Descriptive research design was used on a sample of 320 (161 females and 169 male) students. Procrastination Assessment Scale - Students was used for procrastination, UWES-S survey was used for academic engagement and SISCO Inventory of Academic Stress was used for stress. Results of the research showed that academic stress had a significant influence on academic engagement.

Similarly, in Hong Kong Chyu and Chen (2022) conducted a probe whose results concur with those of the current research. The research aimed at examining how academic stress relates with academic self-disclosure to parents and how mental distress relates with school engagement. From eight secondary schools in Hong Kong, 1804 students were selected for the research. The findings of the study realized significance in the relationship between school engagement and stress. Unlike the foregoing study that studied mental distress the current study studied mental health, a more definite term with specific indicators of depression, anxiety, stress and substance use.

In Australia, Trpcevska (2017) studied predictors of academic self-efficacy, psychological well-being and resilience on academic motivation among students in university. A sample of 163 students from Victoria University completed a questionnaire with items on motivation, demographics, spirituality, perceived stress, locus of control, resilience, psychological well-being and self-efficacy. Results manifested resilience, self-efficacy and psychological well-being as predictors of motivation. From this study we can infer that stress has an effect on academic engagement. Unlike the foregoing study that had a smaller sample of 163 in one university, this study used a larger sample of 422 third year students from four public universities which increased generalizability of the study findings.

In Indonesia, Kadiyono and Annisa (2018) researched on stress and academic engagement of first-year international undergraduate students. The study used correlation design. Student engagement modified questionnaire and Student Stress modified questionnaires were used for data collection. The study found a low negative correlation between stress and student engagement of first-year international undergraduate students. More recently, Van Ryzin et al.

(2022) addressed the ramifications of COVID on the mental wellbeing of young people. The hypothesis of the study was that victimization and stress would have significant effects, and that both would lower academic engagement and predict major mental health problems. Results indicated a significant association between academic engagement and stress.

Regionally, there is a dearth of studies dealing with stress and academic engagement. Closest to this, Oketch-Oboth (2018) conducted a case study that aimed at investigating the relationship between psychosocial adjustment and stress among government-sponsored undergraduates from the University of Nairobi, Kenya. A sample of 584 (319 males and 265 female) students were selected for data collection in a cross-sectional study. Results indicated a high frequency of stress and a significant correlation between stress and psychosocial adjustment. The foregoing study sought to find out the stress and psychosocial adjustment among students in one university. The current study dealt with mental health, identity development and academic engagement. The study was also done among third year undergraduates in Kenyan public universities. This was a more comprehensive study to understand the variables and their relationships.

It is also important to address Yerkes-Dodson Law (Yerkes & Dodson, 1908) as it is shown to explain academic engagement and performance. The model stipulates that certain levels of stress improve performance. When individuals' stress levels are too high or too low their performance reduces.

2.5 Relationship between Substance Use and Academic Engagement

Bugbee et al. (2019) researched on academic engagement, substance use and academic performance among senior high school students. They hypothesized that substance use was

rampant and had a relationship with academic engagement and performance among the students. A sample of 9,578 students was used to explore relationships between substance use and four academic variables; academic self-efficacy, grades, skipping school and emotional academic engagement. Results indicated a high occurrence of substance use and significant interrelations between substance use and academic engagement. The present study utilized third year undergraduate students in Kenya unlike the foregoing study that used 12th graders.

An earlier study by Li et al. (2011) which had a major objective to determine the effect of academic engagement in preventing substance use and adolescent delinquency, the Positive Youth Development Study was used in data collection. Results showed that increased emotional and behavioural school engagement led to a lower chance of delinquency and substance use. Similarly, Kogan et al (2021) confirms the growing problem of Nonmedical Prescription Stimulant (NPS) use in Europe. It was hypothesized that lack of academic engagement and poor mental health are causes of substance use. The study utilized a cross sectional survey design on 584 students selected from Iceland. They filled a questionnaire with items on lifetime NPS use. Results indicated a significant relationship between mental health, substance use and academic engagement.

In a multi country study, Yi et al. (2017) conducted a study in the Association of Southeast Asian Nations (ASEAN) universities. Globally, university students have been identified as a population with major public health issue related to illicit drug use. Results shed light on the effect of substance abuse leading to low engagement, poor performance and eventually poor productivity in their later life. Another multi-country research was done in 2015 in Indonesia, Malaysia, Cambodia, Philippines, Myanmar, Thailand, Vietnam, Singapore and Laos. A sample of 7,923 students between 18–30 years old was used. Results showed that university

student illicit drug use was rampant. This study does not include the correlation between substance use and academic engagement which this study addressed.

In Australia, Tembo et al. (2017) researched on the correlation between alcohol consumption levels, academic performance and mental health among students in university. The main aim of the research was to determine the correlations among alcohol consumption levels, academic performance and mental health. A sample of 6000 (age of 18–24) undergraduate students was used. This study used cross sectional data from Youth Alcohol Project (YAP) of 2014 and interviews for students during campus market days. Results indicated that half of the learners consumed alcohol at dangerous levels and were highly susceptible to psychological distress than those that consumed small amounts of alcohol. In addition, being late and missing classes, inability to complete assignments and inability to concentrate in class predicted for hazardous or moderate alcohol consumption. Study findings revealed that a big number of undergraduates consumed alcohol at dangerous or harmful levels caused by a lack of academic engagement. In addition, dangerous alcohol consumption was related significantly with poor academic performance, mental health and academic engagement.

In Egypt research by Khafagy et al. (2021) inquired on trends of substance use among university students. The main objective of the research was to establish the occurrence and contributing conditions of substance use among Mansoura University students. A sample of 1138 university students was used to collect data using Drug Use Disorders Identification Test (DUDIT). Outcomes of the study showed that over half of students abused substances with a third of the users being polysubstance users. The most abused drug was *Cannabis Sativa*. This study was done in one university and dealt with prevalence while the current study related

substance use, identity development and academic engagement. This study also gave insights into how students' academics were affected by the substances of use.

Research has shown that tobacco use leads to cancers, tuberculosis, heart disease, stroke, erectile dysfunction and many other ailments (Peltzer & Pengpid, 2014). Countries with the highest burden of tobacco-related mortality and morbidity fall under middle and low income countries and the highest percentage (80%) of tobacco users worldwide live in these countries (US Department of Health Services, 2014). A major research was done in 24 LMICs countries in Americas, Asia and Africa among 16,953 undergraduate students from 25 universities. Results showed that 13.3% were current tobacco users. Prevalence varied across countries, the highest being 32.5% in Cameroon, 6.9% in India and 3.8% in Singapore. These differences were attributed to sociocultural disparities in the countries (World Health Organization [WHO], 2022). In most cultures smoking among females was considered a taboo though some smokeless tobacco like pan was acceptable for females (Shah et al. 2018).

A study in Ethiopia by Asgedom (2017) that used convergent parallel mixed methods and sought to determine substance abuse based on social ecological model among undergraduate university students in Ethiopia. Quantitative and qualitative methods were utilized in data collected from 422 randomly selected students. The findings revealed that students' abuse of drugs was attributed to interpersonal, individual, community, institutional and societal factors. The foregoing study was a fact finding study on prevalence and levels of abuse which lacked an outcome variable. The current study included mental health, dimensions of identity development and how they related to academic engagement.

Locally in Kenya, Mbuthia et al. (2020) researched among undergraduate university students along the Coastal region of Kenya. The intention of the research was to assess the perceptions and prevalence of substance abuse among undergraduates from two public universities at the Kenyan coast. The tools used to collect data were focus groups and interviews. Results indicated a high prevalence of substance abuse among university students which caused risky sexual behaviour, poor performance and mental disturbances. The current study sought to understand substance use in the context of academic engagement.

Similarly, Masese (2020) purposed to identify the causative factors and consequences of drug abuse among Kenyan university students. Studies indicated that there was drug abuse at alarming rates despite campaigns against drug abuse by the government and other stakeholders. This has been confirmed by NACADA which reveal a heightened rate of addiction and abuse among the youth. They posit that students abused drugs for several reasons, curiosity, peer pressure, stress, course load, individual and family factors, lack of knowledge, parental misuse of drugs, genetic factors, socio economic status, traumatic life events and macro-environmental factors. The current study sought to understand the relationships between identity development, mental health and academic engagement among undergraduate students unlike the foregoing that only dealt with prevalence and reasons for substance use.

2.6 Relationship between Identity Development and Academic Engagement

A correlational study done in USA by Kayanan (2017) sought to find out the association between college student identity development and readiness for change. Theories applied were; Chickering's model for identity and Erwin Identity Scale and the level of Readiness for Change to measure alcohol use. A convenience sample was drawn from students referred to a treatment Center at the College of William and Mary in Williamsburg, Virginia. Findings of the study

showed that readiness for change was interrelated with college students' level of identity formation. However, the current correlational research strived to establish the interrelations between academic engagement and identity development. Destin and Williams (2020) did a review on identities and outcomes associated to academic persistence and posit that during adolescence and young adulthood, young people develop and explore their identities. Different elements of these developing and dynamic identities serve as a road map for students on how to pursue their goals and navigate the world including how they deal with academic challenges and opportunities. The identity-based motivation framework was used to explain the associations between academic persistence and student identities. The current study researched on identity development and academic engagement within the context of mental health.

According to Becht et al. (2019), in a study that aimed at linking depressive symptoms and identity across adolescence in within-person effects, a longitudinal study design was utilized to determine the effects between commitment processes, identity exploration and depressive symptoms in adolescence. According to the vulnerability model, depressive symptoms are predicted by identity uncertainty whereas the scar model stipulates that depressive symptoms lead to identity uncertainty. Results concur with vulnerability model where and reconsideration of commitment and within-person increasing ruminative exploration predicted a within-person increase in depression one year later, but not the other way round. Study findings showed that identity formation with maladaptive exploration processes led to depression at the within-person point.

In Europe, Christiaens et al. (2021) assert that there are disparities between secondary and tertiary educational identity in the Netherlands. A longitudinal survey was done on a sample of 685 students (47% female). Data from adolescent biannual surveys were used in collecting data

from the final year of secondary school. Results showed that during transition, development of reconsideration and identity commitment was best grouped into four classes. These were, Stable Self-Certainty, Increasing Self-Certainty, Enduring Uncertainty and Post-Transition Uncertainty. Identity development patterns of the adolescents were also related to individual, academic, relational and sociodemographic characteristics. The ongoing study determined the correlation between identity development and academic engagement.

In a study done in Greece by Mastrotheodoros and Motti-Stefanidi (2017) with a major objective to assess the suitability of DIDS among Greek adolescents, a sample of 437 students was used to administer a 25-item questionnaire. Results confirmed effectiveness of the scale in Greek circumstances and indicated strong scale invariance. Luyckx et al. (2008) and colleagues' version propound that identity consists of five aspects; identification with commitments, commitment making, exploration in depth and ruminative exploration in breadth. The current study adopted the DIDS to measure identity development with five dimensions similar to the foregoing study.

Li (2019) sought to examine the relationship between identity and student engagement among engineering undergraduate students. The study recognized the importance of multidimensional nature of student engagement and that there existed a dearth of research about the relationship between student engagement and engineering identity. Identity formation theory guided the study and a validated and adapted Utrecht-Management of Identity Commitments was used to quantify identifying with engineering and to determine how identity relates with student engagement (measured by course choice, effort and persistence). The study was done in an American public university with 241 engineering undergraduate students (M = 22.36 years; 78.4% males). Results indicated that engineering identity had a significant relationship to

student engagement. Unlike the foregoing study the current study researched on identity development and academic engagement.

A study done by Wong and Kaur (2018) in Australia sought to understand the importance of vocational identity and motivation on student engagement among undergraduates. A sample of 216 learners was used and by the use of regression analysis, exploration in depth had a positive and significant association with academic engagement. Identification with commitment also had a positive and significant relationship with students' emotional and cognitive engagement and a non-significant association with behavioural engagement. Further, students' perceptions on the importance of academic activities was instrumental in mediating these associations. It was also found that exploration in breadth and commitment making had a non-significant relationship with academic engagement. Nonetheless, the results confirm the importance of identity development in students' learning, and propose the importance of career counselling and identity interventions that support student development in the university. Although the foregoing study was done in Australia The current study was done in Kenya and among a similar sample of undergraduate students. A larger sample of 415 was also used so as to effectively get a representative group necessary for inferences for generalization.

Despite intentions of equitable learning for all by many educators, researchers have found that sexism and racism are a major hindrance to African American males' academic engagement. A study by Dixson and Gentzis (2021) sought to determine how to address the issue. A sample of 223 high school African American male students was used to find out the associations between school belonging and hope on the three aspects of academic engagement (behavioural engagement, affective engagement, and cognitive engagement).

This knowledge was sought so as to understand the relationships among variables and ways in which academic engagement of African American males can be promoted. Hierarchical regression was used and the results indicated that school belonging and hope accounted for between 24% to 46% of African American male students' academic engagement. It was concluded that an increase in school belonging and hope by fighting racial and gender discrimination in school would lead to increased engagement of black American male students. Although the foregoing study used high school African American male students the current study used third year undergraduate students in Kenyan universities. The variables of study are similar in both studies and the results are therefore important in the current study.

In Kenya Ireri (2015) conducted a study with a major objective to establish the relationships among achievement goal orientation, academic identity status, and academic achievement. The 3 x 2 version of achievement goal orientation and identity status theory were used. The research utilized explanatory sequential mixed methods design. The research was done in Mbeere South, Meru County with 390 secondary school students selected for data collection. Academic identity was measured by an adapted scale and an achievement goal orientation questionnaire were used for data collection. Results indicated that only achieved academic identity status correlated significantly and positively with academic achievement. Research in Kenya on identity development is scarce. Ireri's study used academic identity status, a construct that is informed by identity status theory (Marcia, 1966) and based on adolescent identity development by Erikson (1968). Unlike the reviewed study that used identity status the current study used dimensions of identity development informed by five-dimensional model of identity formation also an extension of Marcia's and Erikson's ideas.

2.7 Relationship between Age, Gender and Year of Admission and Academic Engagement

According to Tomacruz (2018) there is a high rate of suicide, every other day a referral was made related to suicide among the youth in Philippines. This is a clear indicator of high levels of mental ill-health. Prevalence studies on stress have found 60 percent among females. Some studies also show significant relationships between stress and student age. Students who were over 20 years old had higher percentages of stress.

A study done in USA by Martin and Bolliger (2018) had an objective to determine variations in responses on individual differences of age, gender, and experience with engagement in online courses. A sample of 155 learners between 20 to 67 years was used, females were 67.8 percent, whereas males were 32.2 percent. Results showed that female students used additional online resources to explore topics than the males. Results on age showed notable disparities in the means of students 20-29 years and 40-49 years. This reviewed study brought about gender and age differences in responses among graduate students. Whereas the current study sought to determine these differences in third year undergraduate students in Kenya.

In Kenya, Tuikong (2020) studied admission, graduation trends and gender dynamics in Daystar University from 2010 to 2016. Results showed that graduation of students at the university decreased and recommended that studies should be done on causes of declining graduation trends. Academic disengagement led to missing classes, poor preparation for examinations, engaging in unhealthy lifestyles, engaging in drug use, low academic performance, delayed graduation or dropping out of university. The foregoing study used a sample from a private university while the current study used public universities in Kenya. It was interesting to see how a study in public universities corroborated the established findings.

2.8 Summary of Literature Reviewed and Gap Identification

The previous section discussed related literature to mental health, dimensions of identity development and academic engagement. Literature was reviewed per objective and gaps were thus summarized as follows:

Most of the studies reviewed on the interrelations between depression and academic engagement revealed that the two constructs were related. There were few studies from the locality that focused mainly on prevalence of depression. Reviewed literature on the association between academic engagement and anxiety used different scales to measure anxiety and used varied samples ranging from lower secondary to university levels thereby reducing generalizability of the results. The studies done in Africa and Kenya that focused on academic engagement were also hard to come by.

Literature on the association between stress and academic engagement were carried out in different cultural settings. In the Kenyan context, encountered studies researched on stress and different variables from the current study. Though a number of the reviewed studies used samples drawn from university students, none did a study on specific year of study like the current study that used third year students.

Literature on correlations between academic engagement and identity development showed that some studies used a small sample. Relating to age, gender, and year of admission, several studies have disparities in favour of either male or female, yet other studies have reported no gender differences. The present study used a larger sample of 422 with gender parity. In addition, a gap emerged in some studies that partially examined Luyckx model. The current study examined all the five aspects of Luyckx model of identity development formation.

Most of the reviewed literature on the correlation between academic engagement and substance use revealed that the two constructs were related. It was apparent that most of these studies dwelt on prevalence of and factors leading to substance use. The reviewed studies were predominantly done in developed countries, this created space for the current study to improve generalizability in the Kenyan context.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents the research methodology employed in the study. It discusses the research design, location and research variables of the study. The target population, sampling techniques, sample size, pilot study and reliability and validity are also discussed. Data collection and analysis techniques as well as ethical and logistical considerations are also described.

3.2 Research Design

This scientific inquiry used predictive correlational research design. This design is used to quantify and explain the magnitude of association between two or more variables and identify predictive associations between the independent and the dependent variable (Kalan & Luca, 2022). It is concerned with identifying the antecedents of a present condition and no attempts are made to manipulate the variables under study (Schober & Schwarte, 2018). It was considered appropriate for this research that examined relationships among mental health, substance use, dimensions of identity development and academic engagement. The design was also befitting for this research because it permits the scholar to access the relationships among many variables in a single study. Additionally, predictive correlation design was selected as it is suitable for quantitative data collection and analysis (Creswell, 2018).

3.3 Variables of the Study

The predictors of the research were mental health, substance use and identity development. These were measured at the interval measurement scale. The research desired to establish whether there is a correlation linking the predictor and outcome variables. The predictor variables of the study were mental health and identity development. These were measured at interval measurement scale. Mental health consisted of four subscales namely; depression anxiety, stress and substance use. Identity development consisted of five main domains; exploration in breadth, exploration in depth, commitment making, ruminative exploration and identification with commitment. The moderator variables, age, gender and year of admission was measured at ratio, nominal and ordinal scales respectively.

The outcome variable in this study was academic engagement, which was correlated with identity development and mental health. Academic engagement was measured in three main dimensions; behavioural, cognitive and emotional engagement. Interval level of measurement was used to measure these variables and self-report questionnaires on adapted scales were utilized for data collection.

3.4 Location of the Study

To select one public university in four of the eight regions in Kenya purposive sampling was used. One university was selected from four regions, Nairobi, Rift Valley, Nyanza, and Eastern region. These universities were selected as they had characteristics that were similar to most public universities in the region and in Kenya. It was thus important to study public universities because the majority of university students in Kenya were in public universities.

Faraj et al. (2017) posit that there is a high dropout percentage of undergraduate students in Kenya and found a significant correlation between academic integration at university and undergraduate student dropout in public universities in Uasin Gishu County, Kenya. Further, Commission for University Education (CUE) reported a decrease in undergraduate students' graduation from public chartered universities from 56,293 in 2016 to 54,388 in 2017 that may have been attributed to low academic engagement and consequent dropout in all Counties in Kenya (CUE 2019).

3.5 Target Population

In this research the target population comprised of all third year undergraduate students in four public universities in Kenya. While the accessible population comprised of the third year undergraduates in four public universities sampled for the study. Commission for University Education (CUE) reports that in 2020 there were 26,079 (14,035 males and 12,044 female) third year undergraduates in four universities in Kenya. Public universities were selected because the majority of university students in Kenya are in public universities.

This population of third year undergraduate students was selected because they had acquired a considerable level of university experience (Pulfrey et al., 2018), they were either engaged to get to their full potential or disengaged and dropout from university.

3.6 Sampling Techniques and Sample Size Determination

3.6.1 Sampling Techniques

Purposive sampling was utilized to choose four regions from the eight regions in Kenya to achieve a national outlook. Typical case approach was used to select one public university in

the four regions in Kenya. The sample was stratified proportionately in all four universities by gender. To select the third year students within one university systematic random sampling was used. They were given questionnaires to complete and they submitted them to the researcher.

3.6.2 Sample Size

First, a sample was obtained through stratified sampling and later through simple random sampling procedures. In this method every participant had an independent and equal probability being selected (Cohen et al., 2017). The researcher first organized separate lists for male and for female students to ensure equal representation of gender in the universities. Students were selected as they got out of the lecture hall, one female and one male were selected in intervals after every three students. They remained in the hall were given questionnaires to fill.

According to the table for sample size determination by Gill et al. (2010) in Appendix G, total sample size as 384 for a population of 26,079. In order to compensate for non-response, attrition and incomplete questionnaires Singh et al. (2020) recommends that sample size be raised by 10%. The sample size was 422. The formula $n_h = (N_h / N) \times n$, was used to calculate the size of each stratum (Kish as cited in Mukerjee et al., 2018).

The sample was first obtained through stratified sampling and later through simple random sampling procedures. Using class lists given in the schools, the researcher first organized separate lists for male and for female students to ensure equal representation of gender in the universities. Students were selected as they got out of the lecture hall, one male and one female were selected in intervals after every three students. They remained in the hall and were given questionnaires to fill. This sample size and composition is displayed in Table 3.1.

Table 3.1

Sample Distribution of Four Sampled Universities

University Code	Male	Female	Total
A	121	119	240
B	31	24	55
C	42	32	74
D	33	20	53
Total	227	195	422
%	54	46	100

Table 3.1 shows that the sample comprised of 422 students from four universities. This sample size was preferred because it was manageable in terms of administration, time and resources. It also represented 33% and 11% of the target universities and student' population respectively and therefore fulfilled the threshold of what Kothari (2009) consider an appropriate sample from a normal distribution. According to the researchers, a sample of 10% to 20% is appropriate.

3.7 Research Instruments

A questionnaire consisting of five sections was utilized to gather data from the participants. Part I comprised of respondents' personal information comprising of age, gender, year of admission and name of university. Part II consisted of Depression, Anxiety and Stress Scale DASS-21. Part III consisted of the Alcohol and Drug Use Questionnaire. Part IV. Dimensions of Identity Development. Part V had University Student Engagement Inventory USEI. The instruments are shown in Appendix B.

3.7.1 Depression, Anxiety and Stress Scale

Mental health was measured by DASS-21 developed by Lovibond and Lovibond, (1995). This is a self-assessment scales with three subscales for measuring stress, anxiety and depression. Every scale has seven items, the depression scale measures self-deprecation, hopelessness, dysphoria, devaluation of life, anhedonia and apathy. The anxiety scale tests the degree of physical activity, autonomic arousal, anxious affect, subjective experience and situational anxiety. The stress scale assesses nervous arousal, trouble relaxing, impatience, agitation and irritability.

Measures of stress, anxiety and depression were arrived at by individually totaling specific item scores. The DASS-21 is established on a dimensional conception of psychological disorder. Coker et al. (2018) confirm that DASS 21 has outstanding Cronbach's alpha rates of 0.78, and 0.89 and 0.81, for stress, anxiety and depression respectively. No changes were made in this scale and the range of scores were grouped as; extremely severe, severe, moderate, mild and normal. Depression scores ranged from normal 0-9 to a score of 28 and above indicated as extremely severe, for anxiety normal 0-7 to a score of 20 and above indicated as extremely severe, for stress normal 0-14 to extremely severe 34+. This scale is in public domain and open for use by researchers (Lovibond, 2015).

3.7.2 Alcohol and Drug Use Questionnaire

McNeely et al. (2016) generated a 4-item Tobacco, Alcohol, Prescription Medication, and other Substance Use (TAPS) Tool. This tool has a modified ASSIST-Lite and 4-items checking for alcohol use, narcotics use, tobacco use, and prescription medication abuse in the past year (Ali et al., 2013). Primary care patients are basically assessed using this instrument for drug use disorders and general substance use. The TAPS Tool was validated and developed so that it

may be used for either screening, brief assessment tool or both depending on the needs of clinical settings or patient populations (McNeely et al., 2016). The tool is open for public use.

The original TAPS Tool rated use by; never, less than monthly, monthly, and daily/almost daily. For purposes of clarity the researcher used 4 closed ended questions measured on a four-point scale; daily, weekly, monthly and never. The scores ranged from 0 = *never* to 3 = *daily.* Item scores were summed up; the lowest score was 0 indicating never used any of the drugs. The highest was 12 indicating daily use of all drugs. TAPS Tool has Cronbach's alpha values of 0.78. There is evidence of use of this scale in general populations (McNeely, 2020).

Two items we customized to fit the Kenyan scenario, examples of nicotine such as *e-cigarette and vaping* was changed to *kuber, snuff, kiraiko or smokeless tobacco.* The use of number of drinks in the alcohol item was simplified to *how often have you used alcohol?*

3.7.3 Dimensions of Identity Development Scale

Luyckx and partner researchers developed a design of identity that is confirmed instrumental in developmental psychology research. Differentiating between the features of identity has culminated to a clearer perception of hypothetically valid associations like longitudinal links between self-esteem and identity were depicted as varied for those dimensions (Luyckx et al., 2013). Based on the fact that tests of this model had been run in divergent sociocultural circumstances, a clearer understanding of both probable theoretical refinements and phenomena was achieved. Zimmermann et al. (2015) tested this design in French-speaking areas of Switzerland and France. This model was also tested in Georgia, USA by Skhirtladze et al. (2020). Both studies recommended and supported the utility of the DIDS.

Student identity development was gauged by a 25 item scale propounded by Luyckx et al. (2008). This scale has 25 items; 5 items for measuring exploration in breadth, 5 for exploration in depth, 5 for commitment making, 5 for ruminative exploration and 5 items for measuring identification with commitment. All items had a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. Each aspect of DIDS was quantified independently. The range of scores per scale was from 1-5 points. The expected range of scores was from 5 (strongly disagree to all items) to 25 (strongly agree to all items). Reliability of the subscales of DIDS were 0.86, 0.75, 0.79, 0.82, and 0.75. The researcher obtained permission to use the scale from the author Luyckx Koen (Appendix D).

3.7.4 University Student Engagement Inventory

The USEI by Maroco et al., 2016) was utilized to gauge student engagement under three dimensions emotional, behavioural and cognitive. Behavioural engagement is explained as, participation in school-related activities, students' participation in classroom tasks and general student conduct. Cognitive engagement is identified when students invest and are willing to work hard towards understanding intricate concepts and demanding competencies. Emotional engagement is elucidated as feelings on value of schooling, perception of school belongingness and relationship with teachers. The USEI is made up of 15 self-report items, five for each dimension, constructed on the Likert scale with replies from "1-never" to "5-always." The USEI has been tested for reliability and validity (Maroco et al., 2016) and scale invariance through fields of study and gender (Sinval et al., 2018). There are five versions of the scale: English (the United States, the United Kingdom and Finland), Portuguese (for Brazil, Portugal and Mozambique), simple Chinese (Taiwan and Macau), Italian (Italia) and Serbian (Serbia),

Academic engagement was tested by a 15-item scale adapted from USEI by Maroco et al. (2016). The scale measured emotional behavioural and cognitive aspects of academic engagement among university students. USEI had 15 items structured using the Likert scale with feedback parameters from 1= never to 5 = always. The USEI was assessed for factorial reliability and validity. Reliability was satisfactory as Cronbach's Alpha values of 0.74, 0.71, and 0.80 were found for behavioural, cognitive and emotional engagement respectively. Item scores were summed up and higher scores of above 45 indicated a higher level of academic engagement. Scores ranged from 15-75.

3.7.5 Age Gender and Year of Admission

Age was measured by the student writing down their age. In order to compare and further analyze the students age the researcher divided the students into two groups 20-23 years old and 24-28 years old. Gender of the participants was only divided into male and female. The year of admission was used to determine whether there was a delay in graduation and if there was one the participants had a choice to check the reasons for delay. These were Delay(financial) and Delay (sickness).

3.8 Pilot Study

The research tools were administered on a sample of 42 randomly selected third year students drawn from one public university that did not take part in the study. This university was exempted from the main research and was picked because it had characteristics similar to the sampled universities. The pilot study was necessary so as to evaluate the research tools and make sure they were clearly worded, understandable and that the time allocated was enough. The reliability and validity of the study tools was improved to the acceptable threshold.

During the pilot study, research instruments were administered by the researcher in a similar manner and sequence like what would later happen in the real study. The average time taken to complete the questionnaire was also noted by researcher and an enquiry made to know if there were items that were difficult to understand. These ones were marked and later reworded and others rephrased. After this, the suggestions and feedback collected during the pilot study was integrated into the instruments for the study.

Pilot studies are done with 10 percent of respondents in the sample therefore availing adequate data for testing feasibility of techniques, methods, questionnaires, validity and identify modifications needed on the study tools, data collection and analysis procedures (Fraser et al., 2018; Malmqvist et al., 2019).

3.8.1 Validity of the Study Instruments

The investigator examined appropriateness of the components included in the questionnaire and ensured that they adequately addressed the objectives of the research. Through rigorous comparison with past studies and a peer review process, content validity of the study tools was established. The investigator also requested for assistance from the supervisors to establish construct validity by examining the clarity of meaning and the comprehensibility of the study tools.

3.8.2 Reliability of the Study Instruments

The method used for computing test reliability was internal consistency. Instruments reliability for items selected for this study was evaluated during the pilot study using Cronbach's Alpha (α) coefficient. An alpha coefficient of .70 and above as recommended by McNeish (2018) was considered acceptable and adequate in this educational research. The reliability coefficient for

the scales of DASS-21 were outstanding with Cronbach's alpha values of 0.81, 0.80 and 0.87 for stress, anxiety and depression respectively. Substance use had a reliability of 0.78, DIDS items had a reliability of 0.80 and USEI had a reliability of 0.75.

3.9 Data Collection Techniques

The scholar got a letter of introduction from the graduate school (see Appendix I) after which, a research license was acquired from the National Commission for Science, Technology, and Innovation (NACOSTI). Furthermore, the investigator organized to meet with the heads of the sampled universities for briefing on the aims of the study. The researcher sought students' informed consent through an introduction letter and a brief to the students explaining the aims of the study (see Appendix A). The students were notified that they were free to terminate participation if they were not comfortable because participation was voluntary. Students who were inclined to join the study signed the consent form. The participating students were assured that high level of confidentiality would be observed and that pseudonyms would be used. The researcher went in person to get permission for data collection and administered the instruments by use of a questionnaire. The researcher then gave the participants the general information of the study and requirements for filling the questionnaire. Thereafter students filled the questionnaires supervised by the researcher. On average the questionnaires took 30 minutes to fill.

3.10 Data Analysis

Data acquired from the questionnaire was coded and data were interpolated into the Statistical Package for Social Sciences (SPSS) program and data cleaning done. SPSS Version 25.0 computer software database was used for analysis of data and presented using figures, tables and graphs. Descriptive statistical procedures were utilized to report the respondents' traits and describe the data collected and inferential statistics applied to test the research hypotheses. The following null hypotheses were tested in the research:

H_{01}: There is no significant relationship between depression and academic engagement among third year undergraduate students in Kenyan public universities. Statistical test: Pearson's product moment correlation coefficient.

H_{02}: There is no significant relationship between anxiety and academic engagement among third year undergraduate students in Kenyan public universities. Statistical test: Pearson's product moment correlation coefficient.

H_{03}: There is no significant relationship between stress and academic engagement among third year undergraduate students in Kenyan public universities. Statistical test: Pearson's product moment correlation coefficient.

H_{04}: There is no significant relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities. Statistical test: Pearson's product moment correlation coefficient, simple linear regression.

H_{05}: There is no significant relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities. Statistical test: Pearson's product moment correlation coefficient, simple linear regression.

H_{06}: There is no moderating effect of age, gender and year of admission on the relationships among mental health, identity development and academic engagement among third

year undergraduate students in Kenyan public universities. Statistical test: Hierarchical linear regression.

3.11 Logistical and Ethical Considerations

3.11.1 Logistical Considerations

An introduction letter was obtained from the Graduate School at Kenyatta University and permission to undertake research sought from NACOSTI. Authority was obtained for the study from the respective administrative offices (in charge of research) of each university. Consequently, we discussed the aim of the study and agreed upon dates and times of data collection with the concerned deans of schools and chairs of departments. The researcher got informed consent from the participants. Data collection for each university took one week.

3.11.2 Ethical Considerations

Approval to undertake research was got from Kenyatta University Ethics Review Board. Respondents consent to be involved in the research was acquired by respondents signing a form (Appendix A). The students were guaranteed of secrecy and confidentiality of their feedback. Finally, the researcher guaranteed the participants that ethical principles of beneficence and nonmaleficence will be upheld throughout the research. Taking part in the research was voluntary and the goal of the scientific inquiry was elucidated to the respondents. The researcher then gathered the filled questionnaires, coded and analyzed the data.

CHAPTER FOUR

PRESENTATION OF RESULTS, INTERPRETATION AND DISCUSSION

4.1 Introduction

The chapter is organized into four major sections; introduction, general and demographic information, results and discussions and exploratory analysis. The study findings as well as their interpretation and discussion are presented in sub topics as per the study objectives which were to:

i. Determine the relationship between depression and academic engagement among third year undergraduate students in Kenyan public universities.
ii. Establish the relationship between anxiety and academic engagement among third year undergraduate students in Kenyan public universities.
iii. Find out the relationship between stress and academic engagement among third year undergraduate students in Kenyan public universities.
iv. Determine the relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities.
v. Establish the relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities.
vi. Establish how age, gender and year of admission moderate the relationship between mental health, identity development and academic engagement among third year undergraduate students in Kenyan public universities.

4.2 General and Demographic Information

In this section, the return rate of the research instruments and information on students' age, gender, year of admission and reason for delay is presented.

4.2.1 Return Rate of Instruments

The researcher and two assistants went to the four public universities chosen for the study, administered the questionnaires and gave clear instructions on how to complete the questionnaires. All the 422 questionnaires were gathered. From the original sample size of 422 participants seven questionnaires were discarded due to incomplete and multiple responses. The researcher therefore analyzed data from 415 participants (223 males and 192 females) as displayed in Table 4.1.

Table 4.1

Return Rate

University	Target Return Rate			Actual Return Rate		
code	Male	Female	Total	Male	Female	Total
A	121	119	240	119	117	236
B	31	24	55	30	23	53
C	42	32	74	41	32	73
D	33	20	53	33	20	53
Total	227	195	422	223	192	415
%	54	46	100	52.8	45.5	98.3

Note. $N = 415$

Table 4.1 above indicates that 422 questionnaires were administered to 227 male and 195 female respondents, data from only 415 participants were used in this study. During data cleaning, seven questionnaires, four from males and three from females were discarded due to incomplete responses. Therefore, data from 223 males and 192 females were used for

analysis. The response rate was 98.3% which was considered excellent for the study. As per the criteria by Creswell (2014), a 50% response is deemed sufficient while a 70% response rate and over is outstanding for a survey.

4.2.2 Demographic Characteristics of Participants

The participant's distribution per university and reasons for delay was described. The information is exhibited in Table 4.2.

Table 4.2

Description of Participants Age, Gender, and Reasons for Delay

	N	Age	%	*M*	*SD*	*Sk*	*Kur*
Gender	415			1.47	.50	.11	-1.99
Male	223		53.7	22.58	1.37		
Female	193		46.3	22.37	1.24		
		20-23	76.4				
		24-28	23.5				
No delay	389		93.7				
Delay (Financial)	4		1				
Delay (Sickness)	22		5.3				

Note. *N* = 415; *M* = Mean; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

After proportionately sampling the students in selected universities, the results in Table 4.2 indicates that out of a sample of 415, the highest number of students in one university was 236 while the lowest number of students were 53. The participants' age was from 20 to 28 years. The overall mean age was 22.48 (*SD* = 1.32), the females mean age was 22.37 (*SD* = 1.24). This was expected because the entry age at standard one is six years, to complete form four the

students would be 17 or 18 years old and consequently be in third year at 22 or 23. There was a normal distribution in the ages of the participants as indicated by the Kurtosis.

In order to compare and further analyze the students' age, the researcher divided the students into two age groups 20-23 and 24-28. The largest percentage of respondents 76.4% were between 20 and 23 years old, hence corroborating the results that the overall age mean age was 22.48 years, the remaining 23.6% were aged between 23-28 years.

The mean age for both female and male was sought in this research, 415 participants were used and among them 223 (53.7%) were male and 192 (46.3%) were female. The female participants were younger compared to their male counterparts as evidenced by the mean age for females being 22.37 compared to males at 22.58 years old. The researcher sought to find the reasons for delayed graduation and the outcomes are displayed on Table 4.2.

The results presented in Table 4.2 manifested that respondents' reason for delay was categorized as no delay, delay (financial difficulties) and delay (sickness other than mental health). Out of 415 participants 389 (93.7%) participants had not delayed while 6.3% had delayed. Participants that had financial constraints were 4 (1%) while 22 (5.3%) had delayed due to sicknesses other than mental health.

The results presented in the preceding tables indicate that in as much as the participants were from one year of study, there were disparities among them in terms of age, some students were as young as 20 years whereas others were 28 years. This may imply that there may be certain personal, school and societal factors contributing to these age differences. At a personal level, some students may have enrolled in schools late due to factors such as illness, poverty or instability in homes. At school level, students may have delayed due to indiscipline and pregnancy leading them to repeat classes due to low grades or dropped out

temporarily. It is also possible there may have been a lack of academic engagement for learners leading to learners dropping out and going back to school when in primary and secondary school.

At the community level, there may have been no role models to emulate or mentor students towards having a positive attitude towards school and relate with the ultimate goal of success. Another possible explanation could be free primary school education introduced in Kenya in the year 2003, the policy allowed every child to attend school. So students who had dropped off due to lack of school fees would re-join at the class they had left or a class behind, meaning they would always be older than their counterparts. Whatever the reason for the age differences, it must be pointed out that such age differences were likely to have implications on the variables of the study; students' mental health, identity development and academic engagement.

4.3 Participants Academic Engagement

Academic engagement was measured by a 15-item scale adapted from University Student Engagement Inventory (USEI). The scale is used to measure emotional, behavioural and cognitive aspects of academic engagement among students. USEI has 15 items constructed on the Likert scale with reactions ranked from 0 = *never* to 4 = *always*. The scores ranged from 0-60. The analysis of students' academic engagement scores produced the mean, range, standard deviation, kurtosis and skewness. The outcomes are exhibited on Table 4.3.

Table 4.3

Descriptive Statistics for Academic Engagement T-Scores

	N	*M*	Range	Min	Max	*SD*	*Sk*	*Kur*
AE	415	39.41	50.00	10.00	60.00	10.31	-.19	-.45
Valid N (Listwise)	415							

Note. Min = Minimum; Max = Maximum; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

The findings presented in Table 4.3 indicated that most of the academic engagement items obtained the maximum possible range of 50. The minimum score in academic engagement was 10, while the highest was 60. The mean score was 39.41 and *SD* = 10.31.

The respondents' academic engagement scores were categorized as having high, moderate, or low academic engagement (Maroco, 2016). Scores one standard deviation lower than the mean was rated as low while one standard deviation higher the mean was rated as high academic engagement. Further, scores within one standard deviation to the mean were regarded as moderate academic engagement. The results are depicted on Table 4.4.

Table 4.4

Frequencies and Percentages of Participants Academic Engagement

Score	Frequency	Percent	Valid Percent	Cumulative Percent
1-20	15	3.6	3.6	3.6
20-40	209	3.9	3.9	50.4
40+	191	1.2	1.2	100.0
	415	100.0	100.0	

Results displayed in Table 4.4 indicates that most of the students (50.4%) were classified as having moderate levels of academic engagement, (46%) had high academic engagement and (3.6%) had low academic engagement. In this study, low levels of academic engagement were 0-20, moderate 20-40, while high academic engagement was above 40+ (Petričević et al. 2016).

4.3 Relationship between Depression and Academic Engagement

This sub-section presents results of objective one, to determine the relationship between depression and academic engagement. Descriptive statistics for depression and academic engagement were analyzed and to test the hypotheses, inferential statistical analysis were used.

4.4.1 Descriptive Statistics for Participants' Depression

Depression was measured by analyzing the respondents' scores in the depression components in the DASS-21. For every component in the depression items, scores were from 0 to 3 as students responded to a Likert-type scale ranging from 0 = *did not apply to me at all* to 3 = *Applied to me very much or most of the times*. Analysis of depression scores was done to get the standard deviation, mean, range, skewness and kurtosis. The outcomes are flaunted in Table 4.5.

Table 4.5

Description of Participants' Depression Scores

	N	Min	Max	M	SD	Sk	Kur
Depression	415	.00	21.00	7.5470	5.88309	.28	-1.11
Valid N (Listwise)	415						

Note. Min = Minimum; Max = Maximum; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

The obtained results in Table 4.5 indicated that the minimum score was 0 while the maximum score was 21. The mean of the scores was 7.55 (*SD* = 5.88). The results were positively skewed by a coefficient of 0.28. This indicated that most respondents were low on the depression scale. The Kurtosis of the scores was -1.11 implying a platykurtic distribution which shows a negative kurtosis. It has a flat tail that indicates the small outliers in a distribution.

The researcher conducted further analysis to compute the levels of participants' depression scores. The participants were classified to have normal levels of depression if their scores were 0 - 9, mild 10 - 13, Moderate 14 - 20, severe 21 - 27 while extremely severe depression were those above 28+ (Lovibond & Lovibond, 1995). The outcomes are illustrated on table 4.6.

Table 4.6

Description of Participants Depression Levels in Percentage

Depression Level	Scores	Percent
Normal	0 – 9	56.4
Mild	10 – 13	8.9
Moderate	14 – 20	21.4
Severe	21 – 27	12.8
Extremely Severe	28 +	0.5

As observed in Table 4.6, there was a very low percentage of students with extremely severe depression scores while over half of the students had normal levels of depression. In this study 8.9% had mild, 21.4% had moderate while 12.8% had severe depression. The highest percentage were normal 56.4%, those with Severe to extremely severe depression was 13.3%. This implied that most of the participants had normal levels of depression.

4.4.2 Hypothesis Testing

To establish if the relationship between depression and academic engagement was significant, the following null hypothesis was advanced:

H_{01}: There is no significant relationship between depression and academic engagement.

To examine the association between the predictors, Pearson's product moment correlation coefficient was used. The coefficient r (413) = .004) suggested that the assumption of collinearity was not violated. Moreover, tolerance (1.00) and variance inflation factor (1.00) values did not indicate a breach of this assumption. The Dublin- Watson statistic was found to be 1.70 which was within the acceptable range of 1.50 - 2.50. This indicates that there is no first-order autocorrelation.

A scatterplot was created to assess homoscedasticity and it indicated that there was no breach of this assumption as shown in the plot, (Appendix A). A P-P plot was created to check that the values of the residual distributed normally and that there was no breach of this assumption. (Appendix B). Cooks distance values were calculated and found to be below 1 suggesting that no cases were biasing the model (Dhakal, 2017).

Having met the assumptions for the test, the scholar sought to determine the relationship between depression and academic engagement through correlation analysis using Pearson product moment correlation coefficient. The outcomes are displayed in Table 4.7.

Table 4.7

Correlational Matrix for Depression and Academic Engagement

		AE
Depression	Pearson Correlation	.07
	Sig. (2-tailed)	.35
	N	415

Note. $N = 415$; AE = Academic Engagement

Table 4.7 reveals a non-significant correlation (r (413) = .07, $p > .05$). Based on these results, the findings did not give adequate proof to reject the null hypothesis. It was thus concluded that depression and Academic Engagement have a non-significant relationship.

4.4.3 Discussion of Findings

The first objective of this study was to determine whether there was a significant relationship between depression and academic engagement among third year undergraduate students in Kenyan public universities. Descriptive analyses were first conducted. The descriptive findings depicted that majority of the respondents had normal levels of depression and very

few had severe to extremely severe level of depression. Pearson's product moment correlation found a non-significant correlation between depression and academic engagement.

Data shows that majority of the respondents had normal levels of depression. This concurs with results of previous researchers who investigated the trends in depression levels in universities, who found that the level of depression among young adults in college to be neither severe nor too low.

An interesting finding of this research was the non-significant correlation between depression and academic engagement. The results showed a non-significant correlation between academic engagement and depression. This indicates that depression had no relationship with academic engagement. The finding confirms the null hypothesis, that there was no significant relationship between depression and academic engagement. These findings are in agreement with those of Garvik (2014) who studied the correlation between depressive symptoms and school disengagement and engagement. They studied four school variables; intentions to quit, school motivation, truancy and absence in a Norwegian upper secondary vocational school. The results showed moderate associations between the variables and that depressed students managed to remain engaged. This result insinuates that if depressed students managed to remain engaged then a non-significant correlation between depression and academic engagement existed.

The results concur with a cross sectional study by Ngasa et al. (2017) on occurrence and factors related to depression among medical learners in Cameroon. A cross sectional research was done on 618 students in state medical schools in 4 different regions from

December 2015 to January 2016. Depression was measured using the PHQ-9 and a questionnaire used to measure related factors. Results showed that 26 (4.4%) were classified as having severe and severe depression. Depression and self-reported academic performance was found to have no associations. It was concluded that self-reported academic performance and depression was not associated.

Contrary to the study results, research in Asia confirm a high rate of depression among university learners (Sandal et al. 2017; Lun et al. 2018). The research findings do not corroborate with studies by Scotta et al. (2022) that showed that some students had some mild forms of insomnia and the students without insomnia were more academically engaged. Insomnia prevalence was high in socially isolated university students who had higher depression.

The findings were inconsistent with studies done in Ethiopia by Bitew and Birhan (2021) on the effects of depression on academic outcomes of learners in higher education institutions of Northwest Ethiopia. Their results showed that depressive symptoms were related to perceived learning difficulties. Similarly, other studies that negate the findings includes one by Gregans and Graham (2013), Lun et al. (2018) and in India by Sandal et al. (2017), they all found significant relationships between depression and academic engagement.

In Kenya Othieno et al. (2014) confirm a high prevalence of depression. In the region Kaggwa et al. (2022) carried out a cross-sectional study in Uganda aimed at determining the predominance of suicidal ideation and depression and related factors among undergraduate university students. The results indicated that almost half of the depressed learners had suicidal ideation an indication of prevalence of depression.

Although the study sample was similar to those involved in recent studies among university students (Bitew & Birhan, 2021; Kaggwa et al. 2022; Lun et al. 2018; Scott et al. 2022) the respondents in the current study were third year undergraduate students in Kenyan public universities. Maybe differences in academic experience, age, and cultural backgrounds are behind the inconsistencies in the results. It is important to recognize that, a non-significant relationship found between depression and academic engagement meant that students' academic engagement may not necessarily be related to their depression.

The finding that some participants had depression did not mean that their scores were pathological, this is because DASS 21 measures emotional states. There is thus no standard cut-off for defining abnormal or excessive levels of depression. In some studies, the PHQ-9 was more likely than the DASS-21 to classify individuals as having above-threshold symptoms of severity. (Peters et al. 2021).

4.5 Relationship between Anxiety and Academic Engagement

This sub-section presents results of the second objective, to establish the relationship between anxiety and academic engagement. Descriptive statistics for anxiety and academic engagement were first obtained, there after inferential statistical analysis was utilized for hypothesis testing.

4.5.1 Descriptive Statistics for Participants' Anxiety

Anxiety was measured by analyzing the respondents' scores in the anxiety items in the DASS-21. Each component of the anxiety items had scores from 0 to 3 as participants responded to a four-point Likert-type scale ranging 0 = *did not apply to me at all* to 3 = *applied to me very much or most of the times*. The participants' anxiety scores were analyzed to get the range, standard deviation, mean, skewness and kurtosis.

The maximum score attainable was 21 while the minimum score was 0. The mean of the score was 7.89 (*SD* = 5.19). The scores were positively skewed *sk* = 0.16. Indicating that most respondents had rated themselves lowly on the anxiety scale. The Kurtosis of the scores was *kr* = -1.75 implying a platykurtic distribution which indicates there being small outliers in the distribution.

The researcher conducted further analysis to compute the levels of participants' anxiety scores. The students were classified as belonging to the extremely severe, severe, moderate, mild and normal anxiety groups. The results are exhibited in table 4.8.

Table 4.8

Description of Participants Anxiety Levels in Percentage

Anxiety Level	Scores	Percent
Normal	0 – 7	24.4
Mild	8 – 9	4.1
Moderate	10 – 14	12.8
Severe	15 – 19	51.6
Extremely Severe	20 +	3.1

As observed in Table 4.8, there was a very low percentage of students with extremely severe anxiety scores while more than half of the participants had severe level of anxiety. In this study 24.4% had normal, 4.1% had mild, 12.8% had moderate, 51.6% had severe while 3.1% had extremely severe anxiety. In this study, normal levels of anxiety were 0-7, mild 8-9, moderate 10-14, severe 15-19 while extremely severe anxiety was above 20+ (Lovibond & Lovibond, 1995). The highest percentage was severe anxiety 51.6%, those with normal anxiety were 24.4%, mild anxiety 4.1%, moderate anxiety 12.8% and extremely severe anxiety were 3.1%. These anxiety levels are alarming as 71.6% (almost three quarters) of the participants had some level of anxiety.

4.5.2 Hypothesis Testing

In order to determine the relationship between anxiety and academic engagement, the following null hypothesis was advanced:

H_{02}: There is no significant relationship between anxiety and academic engagement.

Pearson's correlation coefficient was utilized to examine the relationship between the predictors. The coefficient (r = .06) suggested that the assumption of collinearity was not violated. Moreover, tolerance (1.00) and variance inflation factor (1.00) values did not indicate a breach of this assumption. The Dublin-Watson statistic was found to be 1.71 which was within the acceptable range of 1.50 - 2.50 (Chang et al. 2019). This indicates that there is no first-order autocorrelation.

A scatterplot was created to assess homoscedasticity and it indicated that there was no breach of this assumption as shown in the plot (Appendix A). A P-P plot was created to check that the values of the residual were distributed normally, there was no breach of this assumption

(Appendix B). Cooks distance values were calculated and found to be below 1 suggesting that no cases were biasing the model (Dhakal, 2017).

Having met the assumptions for the test, the researcher sought to determine the relationship between anxiety and academic engagement through correlation analysis using Pearson product moment correlation coefficient. The outcomes are shown in Table 4.9.

Table 4.9

Correlational Matrix for Anxiety and Academic Engagement

		AE
Anxiety	Pearson Correlation	.06
	Sig. (2-tailed)	.21
	N	415

Note. $N = 415$; AE = Academic Engagement

Table 4.9 reveals a non-significant correlation (r (413) = .06, $p > .05$). Based on these results, the findings did not provide sufficient evidence to reject the null hypothesis. It was thus concluded that anxiety and academic engagement did not relate significantly.

4.5.3 Discussion of Results

The second objective was to describe the relationship between anxiety and academic engagement among third year undergraduate students in Kenyan public universities. The hypothesis advanced to address this objective was: H_{02}: There is no significant relationship between anxiety and academic engagement. The descriptive statistics showed that almost three quarters of the participants had some form of anxiety and half of the students were found to have severe anxiety. The results from Pearson's product moment correlation

depicted a non-significant correlation between participants' anxiety and academic engagement.

The results that almost three quarters of the participants had some form of anxiety is congruent with studies by Asif et al. (2020) in Pakistan, Asghar (2015) in Saudi Arabia and Osborne et al. (2019) in Kenya that found a high prevalence of anxiety among university students. This is enough proof that university students are universally affected by anxiety.

The study outcomes did not concur with previous studies that report positive and significant correlation between participants' anxiety and academic engagement among undergraduates in Hong Kong and Australia by Ng et al. (2022). Though the current study used a similar scale as the foregoing study in measuring anxiety, the difference in results may have been partly because the study used the summarized UWES-S while the current study used University Student Engagement Inventory (USEI) to measure academic engagement.

Abu Ruz et al. (2018) did a study with a goal of determining the effect of depression, persistent anxiety on nursing students' absenteeism rate and academic achievement. Correlational research design was utilized and 170 nursing students were sampled from a private university in Amman, Jordan. The tool used to measure anxiety was Hospital Anxiety and Depression Scale (HADS). Results showed that incessant anxiety and absenteeism impacted on academic achievement of the students, a result that negates the present study results that anxiety had a non-significant relationship to academic engagement. The contrast in the findings may be traced to the differences in the students' characteristics and also the scale used to measure anxiety. The foregoing study was done in a single faculty among 170

graduate nursing students and used HADS for hospital anxiety while the current study used a larger sample, 422 third year undergraduate students from all schools in the universities.

A study done in Canada by King et al. (2021) on academic outcomes and mental health at the beginning year at university negated the findings of this research. The objective was to compare international and domestic students in terms of mental health, associated risk factors and academic outcomes. Results showed that international students had lower rates of anxiety, depression, and insomnia compared to domestic students. It can be deduced therefore, that the international students' anxiety significantly affected academic engagement and consequently academic performance.

A study done in China by Mou et al. (2022) and in Iran by Maralani et al. (2016) found significant results. Similarly, Nakhla (2019) in the correlation between, motivation, fear of failure and student engagement in higher education found that that fear of failure had substantial impacts on motivation and engagement. It can be inferred that fear of failure may be an aspect of anxiety and that there exists significance in the relationship with academic engagement.

Based on the Tripartite theory of depression and anxiety the negative effect of anxiety-depression comorbidity includes restlessness, irritability, poor concentration, increased alcohol and drug abuse, conduct disorder and suicidal ideation would lead to academic disengagement, but the study finds non-significance in the relationship between anxiety and academic engagement, results that are inconsistent with the theory.

4.6 Relationship between Stress and Academic Engagement

This sub-section presents results of objective three; to find out the relationship between stress and academic engagement. Descriptive statistics for stress and academic engagement were first obtained, thereafter inferential statistical analysis for hypothesis testing is presented.

4.6.1 Descriptive Statistics for Participants' Stress

Stress was measured by analyzing the participants' scores in the stress items in the DASS-21. Each component of the stress items was scored from 0 to 3 as respondents responded to a four-point Likert-type scale ranging 0 = *did not apply to me at all* to 3 = *applied to me very much or most of the times*. Analysis of participant's stress scores was done to get the standard deviation, mean, range, skewness and kurtosis. The findings are summarized in Table 4.10.

Table 4.10

Description of Participants' Stress Scores

	N	Min	Max	*M*	*SD*	*Sk*	*Kur*
Stress	415	.00	21.00	8.48	5.26	.08	-.83
Valid N (Listwise)	415						

Note. Min = Minimum; Max = Maximum; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

Table 4.10 indicated that the minimum score was 0 while the maximum score was 21. The mean was 7.89 (*SD* = 5.19). The scores were positively skewed with the coefficient of skewness as *Sk* = .82. This meant that most respondents had gauged themselves lowly on the stress scale. The Kurtosis of the scores was *Kur* = -.83 implying a platykurtic distribution

which shows a negative kurtosis. It has a flat tail that indicates the small outliers in a distribution (Orcan, 2020).

The respondents' stress tally was also used to classify them as having low, moderate, or high stress. Scores one standard deviation above the mean and one standard deviation below the mean were categorized as extremely severe and normal stress respectively. However, scores within one standard deviation close to the mean were deemed as moderate stress (Lovibond & Lovibond, 1995).

The researcher conducted a further analysis to compute the levels of participants' stress scores. In this study, normal levels of stress were 0-14, mild 16-18, Moderate 19-26, severe 27-34 while extremely severe stress was above 34+ (Lovibond & Lovibond, 1995). The results are shown in table 4.11.

Table 4.11

Description of Participants Stress levels in Percentage

Levels of Stress	Score	%
Normal	0 – 14	42.2
Mild	15 – 18	13.7
Moderate	19 – 25	23.5
Severe	26 – 33	15.8
Extremely Severe	34 +	5.3

The findings in Table 4.11 show that most of the students (42.2%) were grouped as having normal levels of stress, (13.7%) had mild stress (23.5%) had moderate, (15.8%) had severe, and (5.3%) had extremely severe stress. These stress levels are not alarming as above half of the students 55.9% had normal and mild stress. After analyzing and interpreting the

participants' stress scores, Pearson's product moment correlation coefficient was computed to establish the correlation between stress and academic engagement.

4.6.2 Hypothesis Testing

In order to determine the relationship between stress and academic engagement, the following null hypothesis was advanced:

H_{03}: There is no significant relationship between stress and academic engagement.

Pearson's correlation coefficient was utilized to examine the association between the predictors. The coefficient (r = .06) suggested that the assumption of collinearity was not violated. Moreover, tolerance (1.00) and variance inflation factor (1.00) values did not indicate a breach of this assumption. The Dublin- Watson statistic was found to be 1.71 which was within the acceptable range of 1.50 - 2.50. This indicates that there is no first-order autocorrelation (Chang et al. 2019).

A scatterplot was created to assess homoscedasticity and it indicated that there was no breach of this assumption as shown in the plot (Appendix A). A P-P plot was created to check that the values of the residual are distributed normally, there was no breach of this assumption (Appendix B). Cooks distance values were calculated and found to be below 1 suggesting that no cases were biasing the model (Dhakal, 2017).

Having met the assumptions for the test, the researcher sought to determine the relationship between anxiety and academic engagement through correlation analysis using Pearson product moment correlation coefficient. The findings are displayed in Table 4.12.

Table 4.12

Correlational Matrix for Stress and Academic Engagement

		AE
Stress	Pearson Correlation	.07
	Sig. (2-tailed)	.47

Note. $N = 415$; AE = Academic Engagement

Table 4.12 reveals that there was a non-significant correlation (r (413) = 0.07, $p > 0.05$). Based on these results, the findings did not avail sufficient evidence to reject the null hypothesis. Consequently, stress and academic engagement were not significantly associated.

4.6.3 Discussion of Results

The third objective of this study was to determine the relationship between stress and academic engagement among third year undergraduate students in Kenyan public universities. Descriptive analyses were first conducted. The descriptive findings depicted that half of the participants had some form of stress ranging from mild to extremely severe stress. In order to better understand the participants' scores, the scores were categorized into extremely severe, severe, moderate, mild and normal depression to enable comparison of scores in this study. Pearson's product moment correlation realized a non-significant relationship between participants' stress and academic engagement.

Data shows that most students had normal, mild and moderate stress (78.9%), this is an indication that these levels were low and manageable. According to the law of stress by Yerks and Dodson that stipulates that certain manageable levels of stress increase performance to a certain point. When stress is too high or too low performance reduces

(Yerkes & Dodson, 1908). Average levels found in the current study may be the explanation for the non-significant correlation between stress and academic engagement.

The findings of this study corroborate those by Young (2017) at Eastern Illinois University. The major aim of the inquiry was to establish the association between students' engagement and stress levels. Findings indicated a non-significant relationship between the stress levels of students and academic engagement. Similarly, a non-significant relationship between stress and academic engagement was found by Nelson, (2018). Results depicted that there was no marked interrelationship between academic engagement and stress as they examined the relations between stress and the intrinsic aspects of academic engagement. In Uganda Wamala (2019) researched on engagement, academic stress and academic performance among third year students of Makerere University school of social sciences. Outcomes of the research showed a non-significant correlation between academic stress and academic engagement.

Several other studies negated the findings of the present study. In a study done in Peru, Latin America by Oliver et al. (2021) titled procrastination, stress in academic engagement in medicine students, results displayed a significant influence between academic stress and academic engagement. A significant association between stress and academic engagement can be inferred from several studies. One such study was done in Australia by Trpcevska, (2017) who studied predictors of psychological well-being, academic self-efficacy, resilience and the impact of academic motivation on university students. The major purpose of the scientific inquiry was to investigate aspects that were instrumental to academic self-efficacy, psychological well-being resilience in students and their impact on motivation. Results showed that psychological well-being, academic self-efficacy and resilience together

predicted motivation. Inference is made because if a students are motivated then it follows that they would be academically engaged.

Another study that negates the results of the current study was done most recently in China by Chyu and Chen, (2022). They researched on the impact of stress on academic self-disclosure to parents, mental distress and engagement. The outcomes indicated that academic stress had a notable relationship with school engagement, self-disclosure to parents and mental distress. This study uses the variable mental distress which implies high stress as one of the indicators. If the students have high stress levels, then it is implied that stress had a significant relationship to academic engagement.

4.7 Relationship between Substance Use and Academic Engagement

This sub-section presents results of objective four; to determine the predictive weight of substance use on academic engagement among third year undergraduate students in Kenyan public universities. Descriptive statistics for substance use and academic engagement were first obtained then inferential statistical analysis were used for hypothesis testing and finally further analysis was done to give the predictive value of the sub-variables of substance use.

4.7.1 Description of Participants' Substance Use

Substance use was quantified by analyzing the students' scores in the 4-item Tobacco, Alcohol, Prescription Medication, and other Substance Use (TAPS) Tool. Each component in the substance use items were scored from 0 to 3 as students responded to a four-point Likert-type scale from 0 = *never* to 3 = *daily*. The respondents' substance use scores were analyzed to get the mean, standard deviation, range, skewness and kurtosis. The findings are displayed in Table 4.13.

Table 4.13

Description of Participants' Substance Use

	N	Min	Max	*M*	*SD*	*Sk*	*Kur*
Substance use	415	.00	100.00	70.49	13.29	-.39	1.82
Valid N (Listwise)	415						

Note. Min = Minimum; Max = Maximum; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

The obtained results in Table 4.13 indicated that the minimum score was 0 while the maximum score was 100. The scores' mean was 70.49 (*SD* = 13.29). The scores were negatively skewed with the coefficient of skewness as -.39. This adduced that most participants had high self-ratings on the substance use scale. The Kurtosis of the scores was 1.82 implying a platykurtic distribution which shows a positive excess kurtosis. It has a flat tail that indicates the small outliers in a distribution (Orcan, 2020).

Table 4.14

Description of Participants Substance Use in Percentage

Score	Frequency	Percent
.00	218	52.5
1.00	73	17.6
2.00	46	11.1
3.00	23	5.5
4.00	12	2.9
5.00	12	2.9
6.00	11	2.7
7.00	2	.5
8.00	7	1.7
9.00	7	1.7
10.00	3	.7
12.00	1	.2

Item scores were summed up; the lowest score was 0 indicating never used any of the substances. The highest was 12 indicating daily use of all drugs. The findings in Table 4.14 show that most of the students 218 (52.5%) never used drugs, 28.7% used drugs rarely while 18.8% used drugs more frequently. These substance use levels were not alarming in the overall sample as above half of the students 52.5% had never used the substances. Though the effects were detrimental in the sample that used the substances. After analyzing and interpreting the participants' stress scores, Pearson's product moment correlation coefficient was computed to establish the correlation between stress and academic engagement.

4.7.2 Hypothesis Testing

In order to determine the relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities, the following null hypothesis was advanced:

H_{04}: There is no significant relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities.

Pearson's correlation coefficient was calculated to examine the associations between the predictors. The coefficient (r = -.13) suggested that the assumption of collinearity was not violated. Moreover, tolerance (1.00) and variance inflation factor (1.00) values did not indicate a breach of this assumption. The Dublin- Watson statistic was found to be 1.81 which was within the acceptable range of 1.50 - 2.50. This indicates that there is no first-order autocorrelation.

The scatterplot was created to assess homoscedasticity and indicate and there was no breach of this assumption as shown in the plot, (Appendix A). A P-P plot was created to that the values of the residual were distributed normally, there was no breach of this assumption. (Appendix B). Cooks distance values were calculated and found to be below 1 suggesting that no cases were biasing the model.

In order to determine the relationship between substance use and academic engagement correlation analysis using Pearson product moment correlation coefficient was performed. The findings are displayed in Table 4.15.

Table 4.15

Correlational Matrix for Substance Use and Academic Engagement

		AE
Substance Use	Pearson Correlation	-.13
	Sig. (2-tailed)	.00
	N	415

Note. $N = 415$; AE = Academic Engagement

Table 4.15 reveals a negative and significant relationship was found between substance use and AE (r (413) = -.13, $p < .05$). The results indicate that when substance use scores go up, there is a reduction in the academic engagement scores. The results imply that pupils who use substances are likely to have a lower the academic engagement score. As a deduction from the results, the null hypothesis was rejected.

4.7.3 Discussion of Results

The fourth objective of this study was to determine the relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities. Descriptive analyses were first conducted and it was found that almost half of the students had used the substances, however, the students that used substances frequently were few. Pearson's product moment correlation found a negative and significant relationship between substance use and academic engagement. When substance use increases there is a decrease in academic engagement.

The findings of this study corroborate those by Bugbee et al. (2019) that established the correlations between academic performance, substance use and academic engagement among high school seniors. The study explored relationships between substance use and four academic variables; academic self-efficacy, grades, skipping school and emotional academic

engagement. Substance use was reported to be prevalent and a notable association found between substance use and academic performance. Another important result is that past-year substance users had 2.71 greater odds of skipping school during the past month than lifetime non-users. This shows a negative significant relationship between substance use and absenteeism. In the current study the results are similar as there was a negative and significant relationship between substance use and academic engagement. Absenteeism is an indicator of low academic engagement.

The findings supported those of Yi et al. (2017), Prevalence and associated factors of illicit drug use among university students in the association of southeast Asian nations (ASEAN). Results showed a high prevalence of illicit drug use. How this study relates to the current study is that when students are already using substances then they graduate into illicit drug use. It can be inferred therefore, that the student's substance use was high. Substance use has been recognized as a major global health issue in the past few years. It may lead to low academic engagement, poor academic performance and in future low productivity in their lives.

Similarly, in Iceland Kogan et al. (2021) sought to determine NPS potential risk profiles by conducting a Latent Profile Analysis (LPA) to classify substance users according to their academic engagement and mental health. Results of the study showed that almost half were low achievers who fit into a profile for drug users characterized by moderate levels of mental health issues and low academic engagement. This study directly related substance use with low academic engagement, a result that is equivalent to that of the current study.

The findings are also consistent with those of Tembo et al. (2017) who researched on the correlation between alcohol consumption levels, academic performance and mental health

among students in university. The study examined the correlations among alcohol consumption levels, academic performance and mental health among sample of 6000 (age of 18–24) undergraduate students. The results showed that almost half of the students consumed alcohol at dangerous levels and were highly susceptible to psychological distress than those that consumed small amounts of alcohol. The students experienced lateness and missing classes, inability to complete assignments and inability to concentrate in class all of which are indicators of academic engagement. Despite the varying demographics and sample characteristics, the findings are generally in line with those of the current study high substance use would lead to low academic engagement. This implies that based on the nature on effects of substance use the students would be incapable of maintaining academic engagement at the university.

4.8 Relationship between Identity Development and Academic Engagement

This sub-section presents results of objective five; to establish the relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities. Descriptive statistics for identity development and academic engagement were first sought, followed by inferential statistical analysis for hypothesis testing.

4.8.1 Description of Participants' Identity Development

Identity development was measured by analyzing the respondents' scores in the identity development items in the DIDS scale. Identity development was measured by a 25 item scale. This scale had 25 items; 5 items for measuring exploration in breadth, 5 for exploration in depth, 5 for commitment making, 5 for ruminative exploration and 5 items for measuring identification with commitment. All items had a 5-point Likert rating scale, rated from 1 =

strongly disagree to 5 = *strongly agree*. Each aspect of DIDS was measured independently. The range of scores was be from 5-20 points.

The participants' student identity development scores were analyzed to obtain the, mean, standard deviation, skewness and kurtosis. The findings are summarized in Table 4.18.

Table 4.16

Description of Participants DIDS Scores

	M	*SD*	*Sk*	*Kur*
DIDS	70.49	13.29	-.39	1.82
AE	39.41	10.31	-.19	-.45

Note. *N* = 415; *M* = Mean; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis; DIDS = Dimensions of Identity Development; AE = Academic Engagement

The obtained outcomes in Table 4.16 indicated that the minimum score was 0 while the maximum score was100. The mean of the scores was 70.49 (*SD* = 13.29). The scores were positively skewed with the coefficient of skewness as -.39 showing that most respondents had rated themselves lowly on the identity development scale. The Kurtosis of the scores was 1.82 implying a platykurtic distribution which shows a negative excess kurtosis. It has a flat tail that indicates the small outliers in a distribution (Orcan, 2020).

Table 4.17

Description of Participants Dimensions of Identity Development in Percentage

Score	Frequency	Percent
0.0 - 19.00	1	.2
20.00 - 39.00	7	1.6
40.00 - 59.00	62	15
60.00 - 79.00	250	60.3
80.00 - 100.00	95	22.9

The findings in Table 4.17 show that most of the students 345 (83.2%) had a high identity development 62 (15%) had moderate and 8 (1.8%) has low identity development. These identity development levels were impressive as most of the students 83.2% had a high identity development. After analyzing and interpreting the participants' identity development scores, Pearson's product moment correlation coefficient was computed to establish the correlation between identity development and academic engagement.

4.7.2 Hypothesis Testing

In order to determine the relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities, the following null hypothesis was advanced:

H_{04}: There is no significant relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities.

Pearson's correlation coefficient was used to establish the relationship between identity development and academic engagement. The coefficient (r = .39) suggested that the assumption of collinearity was not violated. Moreover, tolerance (1.00) and variance inflation factor (1.00) values did not indicate a breach of this assumption. The Dublin- Watson statistic

was found to be 1.81 which was within the acceptable range of 1.50 - 2.50. This indicates that there is no first-order autocorrelation.

The scatterplot was created to assess homoscedasticity and indicate and there was no breach of this assumption as shown in the plot, (Appendix A). A P-P plot was created to check that the values of the residual were distributed normally, there was no breach of this assumption. (Appendix B). Cooks distance values were calculated and found to be below 1 suggesting that no cases were biasing the model.

In order to establish the relationship between identity development and academic engagement correlation analysis using Pearson product moment correlation coefficient was done. The findings are displayed in Table 4.18.

Table 4.18

Correlation Matrix for Student Identity Development and Academic Engagement

		AE
DIDS	Pearson Correlation	.39**
	Sig. (2 - tailed)	.00
	N	415

Note. *N* = 415; AE = Academic Engagement; DIDS = Dimensions of Identity Development; ** Correlation is significant at $p < .01$ (2 tailed)

Table 4.18 reveals a positive and significant correlation (r (413) = .39, $p < .05$) between identity development and academic engagement. The results indicate that when DIDS scores go up, there is an increase in the academic engagement scores. The results imply that pupils who have a high DIDS are likely to have a high academic engagement score.

4.8.3 Discussion of Results

The fifth objective of the research sought to establish the relationship between identity development and academic engagement among third year undergraduate students in public universities in Kenya. Descriptive statistics showed that most students had a high identity development score. Pearson's product moment correlation indicates a positive and significant association between dimensions of identity development and academic engagement. The data suggests that an increase in the identity development leads to an increase in academic engagement. The findings of this study support the results of other studies conducted in the area but contradict the findings of other researchers regarding the positive and significant relationship between identity development and academic engagement.

Five-dimensional Model of Identity Formation has been instrumental, useful and effective in explaining developmental processes. Although this theory is used mainly to explain the concept of dimensions of identity development it also explains students' identity development (Keles et al., 2020; Pfeifer & Berkman, 2018). If students record high scores in dimensions of identity development, then it will lead to high academic engagement. Though few studies relate the two variables; identity development and academic engagement, many studies can be a reference for inference to the same results.

The study results were consistent with previous studies that report positive and significant correlations between identity development and academic engagement. Li (2019) sought to determine the association between identity and student engagement among engineering undergraduate students in a sample of 241 undergraduate students in an American public university. The study recognized the importance of multidimensional nature of student

engagement and that there existed a dearth of research about the relationship between student engagement and engineering identity. Findings of the study showed that different dimensions of engineering identity had independent impact on different areas of student engagement. Specifically, engineering identity had a significant relationship to student engagement.

In Kenya, similar results as those of the present study were reported by (Ireri 2015). The purpose of the research was to establish the associations among achievement goal orientation, academic identity status, and academic achievement. The 3 x 2 version of achievement goal orientation and identity status theory were used. Academic identity was measured by an adapted scale and an achievement goal orientation questionnaire were used for data collection. Results indicated that only achieved academic identity status correlated significantly and positively with academic achievement. This study can be used as a point of reference to make an inference that identity development had a positive and significant relationship to academic engagement.

Destin and Williams, (2020) in an investigation on identities and academic persistence posit that students in adolescence and young adults start to explore and get a deep understanding of their identities. The different facets of these developing dynamic identities are a foundation for how students pursue their goals and navigate the world, including how they tackle academic challenges and opportunities. Therefore, when students had a good identity development, then they would be academically engaged.

4.9 Moderating Effect of Age, Gender and Year of Admission on the Relationship between Mental Health and Academic Engagement

This section presents the findings for the sixth objective of the study, which was to establish the moderating effect of age, gender, and year of admission on the relationship between mental health and academic engagement among third year undergraduate students in Kenyan public universities.

4.9.1 Prediction of Academic Engagement from Mental Health and Student Identity Development Based on Age, Gender and Year of Admission.

The study's sixth null hypothesis was advanced as follows:

$H_{06:}$ There is no significant moderating effect of age, gender and year of admission on the relationship between mental health and identity development and academic engagement.

The researcher conducted a hierarchical multiple regression analysis to predict academic engagement scores given the participants' total mental health and identity development scores, with age, gender, and year of admission as moderator variables. The findings were manifested in Table 4.19, Table 4.20, and Table 4.21.

Table 4.19

Adjusted R2 of Age, Gender and Year of Admission on the Relationship between Mental Health and Student Identity Development on Academic Engagement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.39[a]	.16	.15	9.51
2	.39[b]	.16	.15	9.53
3	.39[c]	.16	.15	9.54

a. Predictors: (Constant), Age, Mental Health, DIDS
b. Predictors: (Constant), Age, Mental Health, DIDS, Gender
c. Predictors: (Constant), Age, Mental Health, DIDS, Gender, Year of Admission

The data in Table 4.19 indicates that the R^2 value obtained in model 1 was .15, R^2 value obtained in model 2 was .15 and R^2 value obtained in model 3 was .15 implying that there was no moderating effect on the level of variation in academic engagement as the outcome variable from the study's predictor variables, that is mental health and identity development was 15 percent. The research further carried out a one-way ANOVA test so as to test the significance of moderating effect of age, gender and year of admission on the relationship of mental health, identity development and academic engagement and the findings are shown in Table 4.20.

Table 4.20

One Way ANOVA of Moderating Effect of Age, Gender and Year of Admission

Model	Sum of Squares	*Df*	Mean Square	*F*	*Sig*
1	6813.59	3	2271.20	25.09	.00[b]
2	6817.85	4	1704.46	18.79	.00[c]
3	6827.12	5	1365.42	15.20	.00[d]

a. Dependent Variable: AE
b. Dependent Variable, Age, Mental Health, DIDS
c. Predictors: (Constant), Age, Mental Health, DIDS, Gender
d. Predictors: (Constant), Age, Mental Health, DIDS, Gender, Year of Admission

The one-way ANOVA outcomes displayed in Table 4.20 indicates that there was a non-significant moderating effect of age, gender and year of admission on the relationship among mental health, student identity development and academic engagement (F (3,413) = 25.09, $p < 0.05$), (F (4,413) = 18.79, $p < 0.05$) and (F (5,413) = 15.02, $p < 0.05$) respectively.

4.9.2 Hypothesis Testing

The researcher conducted further analysis so as to test the overall moderating impact of age, gender and year of admission on the relationship of each of the study's independent variables, that is, mental health and student identity development and the findings are arrayed in Table 4.21.

Table 4.21

Beta Coefficients for Mental Health, Student Identity Development and Age, Gender and Year of Admission

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	Std. Error	B		
1	(Constant)	22.12	8.47		2.61	.01
	mental health	-.011	.015	-.03	-.72	.47
	DIDS	.31	.04	.40	8.65	.00
	Age	-.17	.36	-.02	-.47	.64
2	(Constant)	22.51	8.68		2.60	.01
	mental health	-.01	.02	-.03	-.73	.47
	DIDS	.31	.04	.40	8.62	.00
	Age	-.17	.36	-.02	-.48	.63
	Gender	-.21	.95	-.01	-.22	.83
3	(Constant)	-456.16	1499.24		-.30	.76
	mental health	-.01	.02	-.03	-.71	.48
	DIDS	.31	.04	.40	8.61	.00
	Age	-.12	.39	-.02	-.31	.76
	Gender	-.21	.95	-.01	-.23	.82
	Year of admission	.24	.74	.02	.32	.75

a. Dependent Variable: AE

As observed from Table 4.19, Table 4.20 and Table 4.21, the results indicated that the regression models for model 1, 2, and 3 were significant (F (3,413) = 25.09, $p < 0.05$), (F (4,413) = 18.79, $p < 0.05$) and (F (5,413) = 15.02, $p < 0.05$) respectively, with $R^2 = 0.15$. The three moderator variables, students' age, gender and year of admission were found to have non-significant beta coefficients and the null hypothesis was therefore rejected. Based on the results of the regression models, it can therefore be inferred that students' age, gender and year

of admission produced a non-significant moderating effect on the relationship of mental health and identity development on academic engagement.

4.9.3 Discussion of Results

This study investigated how age, gender and year of admission associated with mental health and identity development in predicting academic engagement. It was established that age was not notably associated with the research variables. However, it was recognized that the respondents were all third year undergraduate students, with a majority of students (76.4%) belonging to the 20 - 23 years' age group. Therefore, comparing respondents at diverse years of study would give contrasting results.

In this research, differences in students' academic engagement were significantly correlated to gender. In addition, gender interacted significantly with the research variables in predicting participants' academic engagement. The results depicted a significant difference in academic engagement mean scores when gender groups were included. Male students achieved significantly higher means on academic engagement score when compared to females.

Based on the finding that age was not notably associated with the research variables, several studies seem to differ by reporting the opposite. In USA Martin and Bolliger (2018) had an objective to determine variations in responses on individual differences of age, gender, and experience with engagement. Results on age showed notable disparities in the means of students 20–29 years and 40–49 years. This implies a significant association unlike the current study.

Gender differences have been found to exist in the mental health prevalence of university students. Tomacruz (2018) reports high rates of suicide in Philippines which is a clear indicator of high levels of mental ill-health. Prevalence studies on stress have found 60 percent among females. Students who were over 20 years old had higher percentages of stress.

The finding that male students achieved significantly higher means on academic engagement score when compared to females is not corroborated by reviewed studies. Martin and Bolliger (2018) found that female students used additional online resources to explore topics than the males an indicator that females were more academically engaged compared to males.

4.10 Exploratory Analysis

Descriptive analysis of the demographic data provided novel insights not described in the study objectives. The researcher, therefore, sought to undertake an exploratory analysis to highlight differences.

4.10.1 Substance Use

The four substances were described and results are displayed in table 4.22.

Table 4.22

Description of Participants Substance Use Scores

Substances	%	*M*	*SD*	*Sk*	*Kur*
Substance Use		70.49	13.29	-.39	1.82
Tobacco	14.5	.27	.72	2.80	6.88
Alcohol	35.4	.53	.82	1.45	1.20
Narcotics	15.4	.24	.63	2.88	8.01
Prescription Medication	25.5	.37	.73	2.10	3.93

Note. *N* = 415; *M* = Mean; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

The obtained results in Table 4.22 indicated that the minimum score was 0 while the maximum score was 100. The scores' mean was 70.49 (*SD* = 13.29). The scores were negatively skewed with the coefficient of skewness as -0.39. This adduced that most participants had high self-ratings on the substance use scale. The Kurtosis of the scores was 1.82 implying a platykurtic distribution which shows a positive excess kurtosis. It has a flat tail that indicates the small outliers in a distribution (Orcan, 2020).

The researcher conducted a further analysis to describe the substances used by participants. The substances were tobacco, alcohol, narcotics and prescription medicine. The findings indicated that the highest mean was alcohol (*M* = .53, *SD* = .82), whereas the lowest mean was narcotics (*M* = .24, *SD* = .63). The standard deviations from (*SD* = .82) alcohol to (*SD* = .63) for narcotics which depicted that the scores were close in the difference of values. The mean score was 70.49 and *SD* = 13.29.

The participants' substance use frequencies were further described by percentages of substance use. The highest was alcohol 35.4% followed by prescription drugs, 25.5%, narcotics 15.4%, the lowest was tobacco 14.5%, This shows that the drug that was used most was alcohol followed by prescription medicines then narcotics and the least used was

tobacco. After analyzing and interpreting the respondents' substance use scores, regression analysis was undertaken and the outcomes depicted in Table 4.23.

Table 4.23

Description of Regression Weights for Substances of Use and Academic Engagement

Hypothesis	Regression weights	*B*	R^2	*T*	*F*	*P*	H_0 Accepted
H_{04}	Substance Use	.30	.15	8.66	74.95	.00	No
$H_{04:1}$	Tobacco Use	-.89	.00	-1.39	1.93	.17	Yes
$H_{04:2}$	Alcohol Use	-.2.80	.05	-4.65	21.59	.00	No
$H_{04:3}$	Narcotics Use	-2.07	.02	-2.58	6.68	.01	No
$H_{04:4}$	Prescription Medicine Use	-1.41	.01	-2.03	4.13	.04	No

Note. N = 413; β = Beta coefficient; R^2 = Adjusted R square; *t* = *t* score; *F* = Critical value of *F*; *p* = Significance level

As shown on Table 4.23 a simple linear regression analysis using the enter method was conducted to examine whether students' academic engagement can be predicted by their substance use scores. The relationship was significant F (1, 413) = 74.95 p = < .05, explaining 15% (R^2 = .15) of the variance in the outcome variable. Substance use (β = .30, t = 8.66 p < .05) contributed significantly to academic engagement.

To make the fifth null hypothesis testable, the following four supplementary null hypotheses were formulated:

$H_{04.1}$: There is no significant relationship between tobacco use academic engagement

$H_{04.2}$: There is no significant relationship between alcohol use academic engagement

$H_{04.3}$: There is no significant relationship between narcotics use academic engagement

$H_{04.4}$: There is no significant relationship between prescription medicine use academic engagement

To test the relationship between tobacco and academic engagement the following supplementary null hypothesis was formulated

$H_{04.1}$: There is no significant relationship between tobacco use academic engagement

Descriptive statistics showed that the drug that was used most was alcohol followed by prescription medicines then narcotics and the least used was tobacco. Pearson's product moment correlation indicated a significant correlation between students' substance use and academic engagement. A multiple regression analysis further revealed that substance use significantly predicted academic engagement, significant F (1, 413) = 74.95 p = < .05. Substance use explained 15% of variance in academic engagement among third year undergraduate students in Kenyan public universities.

Further analysis that tested the subscales of substance use, narcotics use and prescription medicines use had significant correlations on academic engagement. Tobacco use had a non-significant correlation to academic engagement. The beta coefficients of the subscales of substance use revealed that narcotics use had the highest positive significant predictive weight on academic engagement, followed by prescription medicines use and finally alcohol use. Tobacco had a zero predictive weight on academic engagement (see table 4.23).

Table 4.23 reveals that there was a negative and non-significant correlation (r (413) = -.07, p < .05). The results indicate that when tobacco use scores go up, there is a reduction in the academic engagement scores. The results imply that pupils who use tobacco are likely to

have low academic engagement. As sinuated by the results, the null hypothesis was accepted. Regression analysis was done and the outcomes are displayed in Table 4.23.

As shown on Table 4.23 a simple linear regression analysis using the enter method was conducted to examine whether students' academic engagement can be predicted by their tobacco use scores. The model was significant F (1, 413) = 1.93 p = < .05, explaining 0% (R^2 = .00) of the variance in the outcome variable. Tobacco use (β = -.98, t = -1.39 p < .05) did not contribute significantly to the model.

To test the relationship between alcohol use and academic engagement the following supplementary null hypothesis was formulated:

$H_{04.2}$: There is no significant relationship between alcohol use and academic engagement.

Table 4.22 reveals that there was a negligible negative and significant correlation (r (413) = -.07, p < .05). The results indicate that when alcohol use scores go up, there is a reduction in the academic engagement scores. The results imply that pupils who use alcohol are likely to have low academic engagement. As sinuated by these results, the null hypothesis was therefore rejected. Regression analysis was done and the outcomes are displayed in Table 4.23.

As shown on Table 4.23 a simple linear regression analysis using the enter method was conducted to examine whether students' academic engagement can be predicted by their alcohol use scores. The relationship was significant F (1, 413) = 21.59 p = < .05, explaining 5% (R^2 = .05) of the variance in the outcome variable. Alcohol use (β = -2.80, t = - 4.65 p < .05) contributed significantly to academic engagement.

To test the relationship between narcotics use and academic engagement the following supplementary null hypothesis was formulated:

$H_{04.3}$: There is no significant relationship between narcotics use and academic engagement.

Table 4.22 reveals that there was a negligible negative and significant correlation (r (413) = -.13, $p < .05$). The results indicate that when narcotics use scores go up, there is a reduction in the academic engagement scores. Based on these results, the null hypothesis was therefore rejected. Regression analysis was done and the outcomes are displayed in Table 4.23.

As shown on Table 4.23 a simple linear regression analysis using the enter method was conducted to examine whether students' academic engagement can be predicted by their narcotics use scores. The relationship was significant F (1, 413) = 6.68 p = < .05, explaining 2% (R^2 = .02) of the variance in the outcome variable. Narcotics (β = -2.07, t = -2.58 $p < .05$) contributed significantly to academic engagement.

To test the relationship between prescription medicine use and academic engagement the following supplementary null hypothesis was formulated:

$H_{04.4}$: There is no significant relationship between prescription medicine use and academic engagement.

Table 4.22 reveals that there was a negligible negative and significant correlation (r (413) = -0.10, $p < 0.05$). The results indicate that when prescription medicine use scores go up, there is a reduction in the academic engagement scores. Based on these results, the null hypothesis was therefore not accepted. Regression analysis was done and the outcomes are displayed in Table 4.23.

As depicted on Table 4.23 a simple linear regression analysis using the enter method was conducted to examine whether students' academic engagement can be predicted by their prescription medicine use scores. The relationship was significant F (1, 413) = 4.13 p = < .05, explaining 1% (R^2 = .01) of the variance in the outcome variable. Prescription medicine (β = -1.41, t = -2.03 p < .05) contributed significantly to academic engagement.

Table 4.22 shows that tobacco use does not significantly predict academic engagement. However, prescription medicines use, narcotics use and alcohol use significantly predicts Academic Engagement. From Table 4.17, a resultant model of prediction was identified and represented in equation 1.

Equation 1

$\hat{y}$ = (17.97 + -1.41(PMU) (R^2 = .01) p < .05) + (17.97 + -2.07(NU) (R^2 = .02) p < .05) + (17.97 + -2.80(AU) (R^2 = .05) p < .05)

Where $\hat{y}$ is the predicted academic engagement score and PMU, NU, AU are the participants' prescription medicines use, narcotics use and alcohol use respectively.

It is observed from equation 1 that the best and significant predictor of academic engagement was alcohol use (R^2= .05, p < .05). The results mean that for every standard deviation change in alcohol use, academic engagement scores decreased by 2.80 points. The model explains that alcohol use accounted for 5% variance in academic engagement scores. The next significant predictor was narcotics use (R^2= .02, p < .05). The results mean that for every standard deviation change in narcotics use, academic engagement scores decreased by 2.07 points. The model explains that narcotics use accounted for 2% variance in academic engagement scores.

Finally, the least significant predictor was prescription medicines use (R^2= .01, p < .05). The results mean that for every standard deviation change in prescription medicines use, academic engagement scores decreased by 1.14 points. The model explains that prescription medicines use accounted for 1% variance in academic engagement scores.

These results imply that apart from alcohol use (which accounted for 5% of academic engagement scores), narcotics use (which accounted for 2% of academic engagement scores), and prescription medicines use score (which accounted for 1% of academic engagement scores), there were other factors affecting academic engagement scores of students.

4.10.2 Dimensions of Identity Development

The five subscales were described. The results are shown in table 4.24.

Table 4.24

Description of Identity Development Sub-scales

	+50%	-50%	*M*	*SD*	*Sk*	*Kur*
DIDS	94.4	5.1	70.49	13.29	-.39	1.82
CM	90.1	9.9	15.39	3.67	-.97	1.74
EB	93.3	6.7	15.47	3.13	-.79	1.49
RE	65.1	34.9	12.06	4.46	-.42	-.12
IC	85.5	14.5	14.59	3.93	-.81	.73
ED	73.0	27.0	12.99	4.16	-.50	.20

Note. *N* = 415, SD = Standard Deviation; DIDS = Dimensions of Identity Development; CM = Commitment Making; EB = Exploration in Breadth; RE; Ruminative Exploration; IC = Identification with Commitment; ED = Exploration in Depth; *Sk* = Skewness; *Kur* = Kurtosis

The highest mean was found in the subscale EB (*M* = 15.47, *SD* = 3.13), whereas the lowest mean was found in the subscale RE (*M* = 12.06, *SD* = 4.64). The standard deviations were

moderately low ranging from (*SD* = 4.64) for RE to (*SD* = 3.13) for EB, which showed that the scores were closely spread over a range of values.

The participants' DIDS subscales scores were further used to classify to high, moderate, or low identity development. Scores one standard deviation below the mean and one standard deviation above the mean were classified as low and high identity development respectively. Further, scores within one standard deviation close to the mean were considered as moderate identity development.

The results in Table 4.24 indicated that most of the respondents (94.9%) were classified as having high levels of identity development, while (5.1%) had below half (10/20) score in the scale. Having analyzed and interpreted the students' stress scores, Pearson's product moment correlation coefficient bivariate analysis was calculated to determine the interrelations among the commitment making subscales.

Hypothesis Testing

In order to determine the relationship between student identity development and academic engagement, the following null hypothesis was advanced:

H_{05}: There is no significant relationship between student identity development and academic engagement.

To make the fifth null hypothesis testable, the following five supplementary null hypotheses were formulated:

$H_{50.1}$: There is no significant relationship between commitment making and academic engagement

$H_{05.2}$: There is no significant relationship between exploration in breadth and academic engagement

$H_{05.3}$: There is no significant relationship between ruminative exploration academic engagement

$H_{05.4}$: There is no significant relationship between identification with commitment and academic engagement

$H_{05.5}$: There is no significant relationship between exploration in depth and academic engagement

To verify these hypotheses, data were run using the Pearson's product moment correlation coefficient. The findings showed that student identity development had a positive and statistically significant correlation with academic engagement (r (413) = .67, $p < .05$). The null hypothesis was therefore rejected. These findings failed to support the null hypothesis, and it was adduced that student identity development was significantly related to academic engagement.

Further, because identity development had five subscales, bivariate correlation analysis using the Pearson's product moment correlation coefficient was used to determine the associations among identity development subscales and academic engagement. The findings are shown in Table 4.25.

Table 4.25

Correlation Matrix of Subscales of Student Identity Development and Academic Engagement

	AE	ED	IC	RE	EB	CM
AE	-					
ED	.36**	-				
IC	.41**	.57**	-			
RE	.07	.26**	.02	-		
EB	.23**	.37**	.40**	.28**	-	
CM	.30**	.39**	.60**	.02	.53**	-

Note. N = 415; AE = Academic Engagement; ED = Exploration in Breadth; IC = Identification with Commitment; RE = Ruminative Exploration; EB = Exploration in Breadth; CM = Commitment Making

$H_{05.1}$: There is no significant relationship between commitment making and academic engagement.

The hypothesis tests of commitment making (CM) carries a significant relationship on academic engagement (AE). The dependent variable AE was regressed on predicting variable CM to test the hypothesis $H_{05.1}$: CM significantly predicted AE, F (1,413) = 39.41, $p < .05$, which indicates that the CM can play a significant role in shaping AE ($\beta = .83$, $p < .05$). The results clearly direct the positive affect of the CM. Moreover, the $R^2 = .09$ depicts that the model explains 9% of the variance in AE. Table 4.26 displays a recap of the results.

Table 4.26

Description of Regression Weights of DIDS Subscales and Academic Engagement

Hypothesis	Regression Weights	*B*	R^2	*T*	*F*	*P*	H_0 Accepted
$H_{05.1}$	CM-AE	.11	.09	6.28	39.41	.00	No
$H_{05.2}$	EB-AE	.11	.05	4.72	22.25	.00	No
$H_{05.3}$	RE-AE	.03	.00	1.45	2.09	.15	Yes
$H_{05.4}$	IC-AE	.15	.16	8.99	80.88	.00	No
$H_{05.5}$	ED-AE	.15	.13	7.85	61.63	.00	No

Note. Dependent Variable: Academic engagement t-scores
Predictors: CM, EB, RE, IC, ED
SE: Standard Error of Estimate
R^2 = .15, SE = 2.52

The findings in Table 4.25 showed that commitment making had a statistically significant positive correlation with academic engagement *(r* (413) = .30, $p < .05$).

$H_{05.2}$: There is no significant relationship between exploration in breadth and academic engagement.

The hypothesis tests if exploration in breadth (EB) carries a significant impact on academic engagement. The dependent variable AE was regressed on predicting variable EB to test the hypothesis $H_{05.2}$: EB significantly predicted AE, *F* (1,413) = 22.24, $p < .05$, which indicates that the EB can play a significant role in shaping AE ($\beta = .75$, $p < .05$). The results clearly direct the positive affect of the EB. Moreover, the $R^2 = .05$ depicts that the model explains 5% of the variance in AE. Table 4.26 depicts the synopsis of the findings.

The results in Table 4.25 showed that exploration in breadth had a statistically significant positive correlation with academic engagement *(r* (413) = .23, $p < .05$) with academic engagement.

$H_{05.3}$: There is no significant relationship between ruminative exploration and academic engagement.

The hypothesis tests if ruminative exploration (RE) carries a significant impact on academic engagement. The dependent variable AE was regressed on predicting variable RE to test the hypothesis $H_{05.3}$: RE did not significantly predicted AE, F (1,413) = .07, $p > .05$, which indicates that the RE played a non-significant role in shaping AE (β = .03, $p > .05$). The results clearly show no relationship between RE and AE. Moreover, the R^2 = .00 depicts that the model explains 0% of the variance in AE. Table 4.26 depicts a recap the findings.

The findings in Table 4.30 showed that identification with ruminative exploration had a non-significant correlation with academic engagement *(r* (413) = .07, $p > .05$) with academic engagement.

$H_{05.4}$: There is no significant relationship between identification with commitment and academic engagement.

The hypothesis tests if identification with commitment carries a significant impact on academic engagement. The dependent variable AE was regressed on predicting variable IC to test the hypothesis $H_{05.4}$: IC significantly predicted AE, F (1,413) = 80.88, $p < .05$, which indicates that the IC can play a significant role in shaping AE (β = 1.06, $p < .05$). The results

clearly direct the positive affect of the IC. Moreover, the R^2 = .16 depicts that the model explains 16% of the variance in AE. Table 4.26 depicts a recap of the results.

The outcomes in Table 4.25 showed that identification with commitment had a statistically significant positive correlation with academic engagement *(r* (413) = .41, p < .05) with academic engagement.

$H0_{5.5}$: There is no significant relationship between exploration in depth and academic engagement.

The hypothesis tests if exploration in depth (ED) carries a significant impact on academic engagement. The dependent variable AE was regressed on predicting variable ED to test the hypothesis $H0_{5.5}$: ED significantly predicted AE, F (1,413) = 61.63, p < .05, which indicates that the ED can play a significant role in shaping AE (β = .89, p < .05). The results clearly direct the positive affect of the ED. Moreover, the R^2 = .13 depicts that the model explains 13% of the variance in AE. Table 4.31 depicts a recap of the outcomes.

The findings in Table 4.25 showed that exploration with depth had a statistically significant positive correlation with academic engagement (r (413) = .36, p < .05) with academic engagement.

Table 4.25 shows that RE use does not significantly predict academic engagement. However, EB, CM, ED, IC significantly predicts Academic Engagement. From Table 4.31, a resultant model of prediction was identified and represented in equation 1.

Equation 1

$\hat{y}$= (17.97 + .11 (EB) (R^2 = .05) p < .05) + (17.97 + .11 (CM) (R^2 = .09) p < .05) + (17.97 + .13 (ED) (R^2 = .13) p < .05) + (17.97 + .16 (IC) (R^2 = .16) p < .05)

Where $\hat{y}$ is the predicted academic engagement score and EB, CM, ED, are the participants' exploration in breadth, commitment making, exploration in depth and identification with commitment score.

It is observed from equation 1 that the best and significant predictor of academic engagement was identification with commitment (R^2 = .16, p < .05). The results mean that for every standard deviation change in identification with commitment, academic engagement scores increased by 0.16 points. The model explains that identification with commitment accounted for 16% variance in academic engagement scores. The next significant predictor was exploration in depth (R^2 = .13, p < .05). The results mean that for every standard deviation change in exploration in depth, academic engagement scores increased by 0.13 points. The model explains that exploration in depth accounted for 13% variance in academic engagement scores. This was followed by commitment making (R^2 = .09, p < .05). The results mean that for every standard deviation change in commitment making, academic engagement scores increased by 0.09 points. The model explains that commitment making accounted for 9% variance in academic engagement scores. Finally, the least significant predictor was exploration in breadth (R^2 = .05, p < .05). The results mean that for every standard deviation change in exploration in breadth, academic engagement scores increased by 0.05 points. The model explains that exploration in breadth accounted for 9% variance in academic engagement scores.

These results imply that apart from exploration in breadth (which accounted for 5% of academic engagement scores), commitment making (which accounted for 9% of academic engagement scores), exploration in depth (which accounted for 13% of academic engagement scores) and identification with commitment score (which accounted for 16% of academic engagement scores), there were other factors affecting academic engagement scores of students.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusions and recommendations of the study. First, the summary of the main findings is presented. Secondly, the conclusions based on the findings by objective and lastly, the recommendations of the study in relation to policy and further research were presented.

5.2 Summary

The study was aimed at finding out whether mental health and identity development correlate with academic engagement among third year undergraduate students in Kenyan public universities. Six objectives were formulated for the purpose of narrowing the focus of the study. The first five objectives sought to establish the relationship between the study's independent variables; depression, anxiety, stress, substance use, Identity development and the dependent variable, academic engagement. The sixth objective explored the moderating effect of age, gender, and year of admission on the relationship between mental health, identity development and academic engagement.

The first objective of the study sought to describe the relationship between depression and academic engagement among third year undergraduate students in Kenyan public universities. The research findings showed a non-significant correlation between participants' depression and academic engagement.

Regarding the second objective, the research sought to examine the relationship between anxiety and academic engagement among third year undergraduate students in Kenyan public universities. The study results revealed that there was a non-significant correlation between participants' anxiety and academic engagement.

The third objective of the study was to describe the relationship between stress and academic engagement among third year undergraduate students in Kenyan public universities. The study results revealed that there was a non-significant correlation between participants' stress and academic engagement.

Relating to the fourth objective the study was to determine the relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities. The study findings revealed that there was a negative significant correlation between participants' substance use and academic engagement. The findings revealed that increased levels of substance use leads to a reduction in the academic engagement scores. The results imply that if students use substances then they are likely to have low academic engagement. Further analysis indicated that Alcohol had the greatest negative correlation to academic engagement and that tobacco had a non-significant relationship with academic engagement.

With respect to the fifth objective, the study was to establish the relationship between identity development and academic engagement among third year undergraduate students in Kenyan public universities. Pearson product moment correlation analysis indicated there was a positive and significant relationship between identity development and academic engagement. Further analysis indicated that among the five dimensions of identity development,

identification with commitment had a positive significant relationship with academic engagement. It also had the most significant correlation to academic engagement.

The sixth objective of the study was to indicate how age, gender and year of admission moderate the relationship between mental health, student identity development and academic engagement among third year undergraduate students in Kenyan public universities. Hierarchical linear regression analysis showed that there was a non-significant moderating effect of age, gender and year of admission on the relationship among mental health, student identity development and academic engagement. Further analysis showed that, based on the outcomes of the regression models, it can be inferred that students' age, gender and year of admission produced a non-significant moderating effect on the relationship of mental health and student identity development on academic engagement.

5.3 Conclusions

The study's first objective was to determine if there was a relationship between depression and academic engagement. Based on the findings, it was established that there was evidence of a non-significant relationship between depression and academic engagement. A non-significant relationship was established between participants' depression and academic engagement. The findings implied that the students' mental health, in this case depression, may not be instrumental in determining the students' academic engagement.

Based on the second objective, which was to identify if there was a correlation between anxiety and academic engagement. The results depicted no evidence of a relationship between anxiety and academic engagement. A non-significant correlation was found between anxiety and

academic engagement. The findings implied that the student's mental health; in this case anxiety did not play a major role in determining students' academic engagement.

The third objective of the research was to determine the relationship between stress and academic engagement. According to the outcomes, it was adduced that there was no relationship between stress and academic engagement. A non-significant correlation with academic engagement was found. The findings implied that the student's mental health; in this case stress did not play a pertinent role in determining students' academic engagement.

The fourth objective sought to describe the relationship between substance use on academic engagement among third year undergraduate students in Kenyan public universities. Pearson correlation analysis indicated there was a negative and significant relationship between substance use and academic engagement. Therefore, substance use had a relationship with academic engagement, the higher the substance use the lower the academic engagement. Further analysis showed that among the four drugs of use alcohol, narcotics and prescription medicines use had significant relationships with academic engagement while tobacco has a non-significant relationship to academic engagement. If substance use was reduced, students would achieve high levels of academic engagement. The teachers, school administration and other stakeholders are thus encouraged to invest in substance use prevention and treatment programs for the students.

The fifth objective was to establish the relationship between identity development on academic engagement among third year undergraduate students in Kenyan public universities. Bivariate correlation analysis indicated there was a positive and significant relationship between identity development and academic engagement. This clearly indicated that when students scored

highly in the dimensions of identity development they also were highly academically engaged. Further analysis indicated that among the five dimensions of identity development, identification with commitment had the most significant relationship with academic engagement. Thus, identification with commitment being the most significant on academic engagement should be promoted. Specifically, students need to be encouraged by teachers to develop this particular dimension together with the others so as to achieve academic engagement.

The sixth objective of the study sought to indicate how age, gender and year of admission moderate the relationship between mental health, student identity development and academic engagement among third year undergraduate students in Kenyan public universities. Hierarchical linear regression analysis indicated that there was a significant moderating effect of age, gender and year of admission on the relationship among mental health, student identity development and academic engagement. Further analysis showed that, based on the results of the regression models, it can be deduced that students' age, gender and year of admission produced a significant moderating effect on the relationship of mental health and student identity development on academic engagement. However, even though the general regression model was found to be significant, it was established that the R squared value was 0.16, implying that only 16 percent of the total variation of academic engagement was explained by the effect of the three moderator variables and their relationship with predictor variables, thus signifying a weak prediction level.

5.4 Recommendations

Based on the study's findings, the following points both for policies and areas requiring further investigation were made:

5.4.1 Policy Recommendations

i. The objectives of the study sought to determine the relationship between depression and academic engagement. A non-significant relationship was established between participants' depression and academic engagement. Therefore, it is important that, all stakeholders be involved in improving mental health specifically depression among third year undergraduate students. This could be done by providing treatment for the students already sick and initiate a prevention programme that promotes mental health wellness in the universities.

ii. The study's second objective was to identify if there was a relationship between anxiety and academic engagement. Based on the findings, it was established that there was evidence of a relationship between anxiety and academic engagement. A non-significant correlation with academic engagement was found. The findings implied that anxiety may not relate with academic engagement. Nonetheless, teachers should encourage students to seek treatment for extreme cases that would need medication. They are advised to train a mental health specialist in the universities medical facilities to understand currents trends and research in mental health.

iii. The third objective of the study was to describe the relationship between stress and academic engagement among third year undergraduate students in Kenyan public universities. The research findings indicated that stress had a non-significant correlation with academic engagement. Inference from theory stipulates that certain levels of stress led to higher academic engagement. This meant that some levels of stress promoted

engagement. The administration and teaching staff would educate the students on this implication so as to promote academic engagement. And also encourage students to seek treatment for extreme cases of stress that would need medication. They are advised to update mental health specialist knowledge on mental health in the universities.

iv. The fourth objective of the study was to describe the relationship between substance use and academic engagement among third year undergraduate students in Kenyan public universities. A significant relationship between substance use and academic engagement was found. More specifically, all the subscales of substance use had a significant predictive weight on academic engagement. All stakeholders, are urged to provide prevention and treatment to third year students so as to prevent substance use and consequently low academic engagement and the effects that come with it.

v. The fifth objective sought to review the relationship between dimensions of identity development and academic engagement among third year undergraduate students in Kenyan public universities. A significant relationship between identity development and academic engagement was found. This clearly indicated that when students scored highly in the dimensions of identity development they were also highly academically engaged. Lecturers are advised to promote identity development among the university students. This would reflect in an increased academic engagement.

5.4.2 Recommendations for Further Research

The following recommendations were made for areas that might require further research:

i. The study sought to determine the relationships between depression, anxiety, stress, substance use, identity development and academic engagement. Future studies may be considered for other variables that may correlate with academic engagement that were not addressed by this study.

ii. The study adopted scales in questionnaire form as tools for data collection. Other studies should be done focusing on similar constructs using other tools such as interviews, observations, or focused group discussions, which may be more practical in cross validation of participants' responses.

iii. The study was based on third year undergraduate students in Kenyan public universities. To explore if the findings of the present research are representative, further inquiries may be carried out, preferably focusing on samples drawn from different populations.

REFERENCES

Abu Ruz, M. E., Al-Akash, H. Y., & Jarrah, S. (2018). Persistent (Anxiety and Depression) affected academic achievement and absenteeism in nursing students. *The open nursing journal, 12,* 171–179. https://doi.org/10.2174/1874434601812010171.

Adler, A., & Seligman, M. (2016). Using wellbeing for public policy: Theory, measurement, and recommendations. *International journal of wellbeing, 6,* 1-35. https://internationaljournalofwellbeing.org/index.php/ijow/article/view/429

Albarello, F., Crocetti, E., & Rubini, M. (2018). I and us: A longitudinal study on the interplay of personal and social identity in adolescence. *Journal of youth and adolescence, 47*, 689–702. https://doi.org/10.1007/s10964- 017-0791-4.

Alcorn, J. L. III., Marks, K. R., Stoops, W. W., Rush, C. R., & Lile, J. A. (2019). Attentional bias to cannabis cues in cannabis users but not cocaine users. *Addictive behaviors, 88,* 129–136. https://doi.org/10.1016/j.addbeh.2018.08.023.

Alrashidi, O., Phan, H. P., & Ngu, B. H. (2016). Academic engagement: An overview of its definitions, dimensions, and major conceptualisations. *Canadian center of science and education, 9*(12), 41-52. http://dx.doi.org/10.5539/ies.v9n12p41.

Altena, E., Baglioni, C., Espie, C. A., Ellis, J., Gavriloff, D., Holzinger, B., Schlarb, A., Frase, A., Jernelöv, S., & Riemann, D. (2020). Dealing with sleep problems during home confinement due to the COVID- 19 outbreak: Practical recommendations from a task force of the European CBT- I Academy. *Journal of sleep research, 29*(4). https://doi.org/10.1111/jsr.13052.

Al Ali, N. M., Alqurneh, M. K., Dalky, H., & Al-Omari, H. (2017). Factors affecting help-seeking attitudes regarding mental health services among attendance of primary health

care centers in Jordan. *International journal of mental health, 46*(1), 38–51. https://doi.org/10.1080/00207411.2016.1264039.

American Psychiatric Association. *Diagnostic and statistical manual of mental disorders.* 4th ed. Washington, DC: American Psychiatric Association; 1994.

Amponsah, K. D., Adasi, G. S., Mohammed, S. M., Ampadu, E., Okrah, A. K., & Wan, P. (2020). Stressors and coping strategies: The case of teacher education students at University of Ghana, *Cogent education, 7*:1, https://doi.org/10.1080/2331186X.2020.1727666

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. American Psychologist, 55(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469

Asgedom, T. T. (2017). *Substance abuse among undergraduate students at a university in Ethiopia.* [Unpublished Doctoral Thesis] University of South Africa, Pretoria. http://hdl.handle.net/10500/23580.

Asghar, H. M. (2015). Patterns of engagement and anxiety in university students: first year to senior year students' work engagement & anxiety: are they related? *Academia* https://www.academia.edu/12531673.

Asif, S., Mudassar, A., Shahzad, T. Z., Raouf, M., & Pervaiz, T. (2020). Frequency of depression, anxiety and stress among university students. *Pakistan journal of medical sciences, 36*(5), 971–976. https://doi.org/10.12669/pjms.36.5.1873

Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College student development, 40*(5), 518–529. https://www.researchgate.net/publication/220017441.

Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., Hwang, I., Kessler, R. C., Liu, H., Mortier, P., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Aguilar-Gaxiola, S., Al-Hamzawi, A., Andrade, L. H., Benjet, C., Caldas-de-Almeida, J. M., Demyttenaere, K., Florescu, S., … Bruffaerts, R. (2016). Mental disorders among college students in the World Health Organization World Mental Health Surveys. *Psychological medicine*, *46*(14), 2955–2970. https://doi.org/10.1017/S0033291716001665

Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education-drug use connection: How successes and failures in school relate to adolescent smoking, drinking, drug use, and delinquency.* Taylor & Francis Group/Lawrence Erlbaum Associates.

Bantjes, J. R., Kagee, A., McGowan, T., & Steel, H. (2016). Symptoms of posttraumatic stress, depression, and anxiety as predictors of suicidal ideation among South African university students. *Journal of American college health*, *64*(6), 429–437. https://doi.org/10.1080/07448481.2016.1178120.

Bantjes, J., Lochner, C., Saal, W. et al. (2019). Prevalence and sociodemographic correlates of common mental disorders among first-year university students in post-apartheid South Africa: implications for a public mental health approach to student wellness. *BMC public health 19*, 922. https://doi.org/10.1186/s12889-019-7218-y.

Becerra, M., Alonso, J. D., Frias, M., Angel-Urdinola, D., & Vergara, S. (2020). Latin America and the Caribbean: Tertiary Education. https://documents1.worldbank.org/curated/en/720271590700883381/COVID-19-Impact-on-Tertiary-Education-in-Latin-America-and-the-Caribbean.pdf.

Becht, A. I., Luyckx, K., Nelemans, S. A., Goossens, L., Branje, S., Vollebergh, W., & Meeus, W. (2019). Linking identity and depressive symptoms across adolescence: A multisample longitudinal study testing within-person effects. *Developmental psychology*, *55*(8), 1733–1742.

Beer, C., & Lawson, C. (2016). The problem of student attrition in higher education: An alternative perspective. *Journal of further and higher education.* https://doi.org/10.1080/0309877X.2016.1177171.

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of affective disorders, 173*, 90–96. https://doi.org/10.1016/j.jad.2014.10.054.

Bernardo, A. B., Galve-González, C., Núñez, J. C., & Almeida, L. S. (2022). A path model of university dropout predictors: The role of satisfaction, the use of self-regulation learning strategies and students' engagement. *Sustainability, 14*, 1057. https:// doi.org/10.3390/su14031057

Beyers, W., & Luyckx, K. (2016). Ruminative exploration and reconsideration of commitment as risk factors for suboptimal identity development in adolescence and emerging adulthood. *Journal of adolescence, 47*, 169–178. https://doi.org/10.1016/j.adolescence.2015.10.018

Bitew, T., & Birhan, W. (2021). The potential effect of depression on academic outcomes of students in higher educational institutions of northwest Ethiopia: A cross-sectional study. *Educational research and reviews, 16*(1), pp. 9-15. https://files.eric.ed.gov/fulltext/EJ1284673.pdf

Blakcori, N. (2019). *Recruitment and retention of students in developing countries: An overview*. *Professors without Borders*. https://www.researchgate.net/publication/337215235_Recruitment_and_Retention_of_Students_in_Developing_Countries_An_Overview.

Blest-Hopley, G., Giampietro, V., & Bhattacharyya, S. (2018). Residual effects of cannabis use in adolescent and adult brains—A meta-analysis of fMRI studies. *Neuroscience and biobehavioral reviews*, *88*, 26–41. https://doi.org/10.1016/j.neubiorev.2018.03.008.

Blest-Hopley, G., Giampietro, V., & Bhattacharyya, S. (2019). Regular cannabis use is associated with altered activation of central executive and default mode networks even after prolonged abstinence in adolescent users: Results from a complementary meta-analysis. *Neuroscience and biobehavioral reviews*, *96*, 45–55. https://doi.org/10.1016/j.neubiorev.2018.10.026

Bond, M., Buntins, K., Bedenlier, S., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: a systematic evidence map. *International journal of education technology in higher Education, 17*, 2 https://doi.org/10.1186/s41239-019-0176-8.

Boulton, C. A., Hughes, E., Kent, C., Smith, J. R., & Williams, H. (2019). Student engagement and wellbeing over time at a higher education institution. *PloS one, 14*(11), e0225770. https://doi.org/10.1371/journal.pone.0225770.

Branje, S., & Koper, N. (2018). *Psychosocial development.* In M. Bornstein (Ed.), The SAGE encyclopedia of lifespan human development. Thousand Oaks: SAGE Publications, Inc., 1772–1774. https://doi.org/10.4135/ 9781506307633.n661.

Bugbee, B. A., Beck, K. H., Fryer, C. S., & Arria, A. M. (2019). Substance use, academic performance, and academic engagement among high school seniors. *The journal of school health, 89*(2), 145–156. https://doi.org/10.1111/josh.12723.

Burke, A. (2019). Student retention models in higher education: A literature review. *College and university, 94*(2), 12–22 https://www.proquest.com/docview/2232610556.

Carter, C. P., Reschly, A. L., Lovelace, M. D., Appleton, J. J., & Thompson, D. (2012). Measuring student engagement among elementary students: Pilot of the student engagement instrument—elementary version. *School psychology quarterly, 27*(2), 61-73. http://dx.doi.org/10.1037/a0029229

Chang, C., Pal, N., & Lin, J. (2019). Testing first order autocorrelation: A simple parametric bootstrap approach to improve over the standard tests. *American journal of mathematical and management sciences, 38*:3, 261-276. https://doi.org/10.1080/01966324.2018.1519475

Chyu, E. P. Y., & Chen, J. (2022). Associations between academic stress, mental distress, academic self-disclosure to parents and school engagement in Hong Kong. *Frontiers psychiatry*, https://doi.org/10.3389/fpsyt.2022.911530

Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of abnormal psychology, 100*(3), 316–336. https://doi.org/10.1037/0021-843X.100.3.316.

Cleofas, J. V. (2019). Student involvement, mental health and quality of life of college students in a selected university in Manila, Philippines. *International journal of adolescence and youth.* https://doi.org/10.1080/02673843.2019.1670683.

Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education* (8th ed). New York, NY: Routledge.

Creswell, J. W. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches,* (5th ed). Sage Publications.

Creswell, J. W. (2014). *Research* (4th ed). Sage Publications.

Christiaens, A. H. T., Nelemans, S. A., Meeus, W. H. J., & Branje, S. (2021). Identity development across the transition from secondary to tertiary education: A 9-wave longitudinal study. *Journal of adolescence, 93,* 245–256. https://doi.org/10.1016/j.adolescence.2021.03.007

Crocetti, E., Prati, F., & Rubini, M. (2018). The interplay of personal and social identity. *European psychologist, 23,* 300–310. https://doi.org/10.1027/1016-9040/ a000336.

Crosling, G. L. (2017). *Student retention in higher education, a shared issue*. In J. C. Shin & P. Teixeira (Eds.), Encyclopedia of International Higher Education Systems and Institutions (pp. 1–6), https://doi.org/10.1007/978-94-017-9553-1_314-1.

CUE (2019). Commission for University Education, University Statistics 2017-2018. https://www.cue.or.ke/index.php?option=com_phocadownload&view=category&download=205:2017-2018-university-statistics-report-approved-doc&id=18:universities-data-0-3&Itemid=496

Delfino, A. (2019). Student engagement and academic performance of students of Partido state university. *Asian journal of university education, 15*, 42-55. https://files.eric.ed.gov/fulltext/EJ1222588.pdf

Destin, M., & Williams J. L. (2020). Identities and outcomes related to academic persistence. *Annual review of developmental psychology, 2*:437-460 https://doi.org/10.1146/annurev-devpsych-040920-042107.

Dhakal, C. P. (2017). Dealing with outliers and influential points while fitting regression. *Journal of institute of science and technology, 22*(1), 61–65. https://doi.org/10.3126/jist.v22i1.17741

Dixson, D. D., & Gentzis, E. A. (2021). To Hope and Belong in Adolescence: A Potential Pathway to Increased Academic Engagement for African American Males. *School psychology review, 52*(3), 330–342. https://doi.org/10.1080/2372966X.2021.1985927

Erikson, E. H. (1968). Identity, youth and crisis. W. W. Norton & Company, Inc.

Essiam, J. O. (2019). *Influence of student engagement on academic performance in higher education in Ghana.* [Unpublished Thesis] University of Ghana. http://ugspace.ug.edu.gh/handle/123456789/35537]

Exetera, D. J., Ameratungaa, S., Ratimab, M., Ameratunga, S., Ratima, M., Morton, S., Dickson, M., Hsu, D., & Jackson, R. (2010). Student engagement in very large classes: The teachers' perspective. *Studies in higher education, 35*(7):761–775. doi:10.1080/03075070903545058 – DOI.

Faraj, C. Z., Kang'ethe, S., & Mwalw'a, S. (2017). Factors influencing undergraduate student drop-out in public universities in Uasin Gishu County, Kenya. *Journal of education. (2)*1, 54- 70

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of educational research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059.

Furrer, C. J., & Marchand, G. C. (2020). The adolescent peer system and academic engagement, Educational Psychology, https://doi.org/10.1080/01443410.2019.1706722.

Galliher, R. V., McLean, K. C., & Syed, M. (2017). An integrated developmental model for studying identity content in context. *Developmental psychology, 53*, 2011– 2022. https://doi.org/10.1037/dev0000299

Garvik, M., Idsoe, T., & Bru, E. (2014). Depression and School Engagement among Norwegian Upper Secondary Vocational School Students. *Scandinavian journal of educational research, 58*:5, 592-608. https://doi.org/10.1080/00313831.2013.798835.

Gençöz, T. (2002). Discriminant validity of low positive affect: Is it specific to depression? *Personality and individual differences, 32*(6):991-999. https://doi.org/10.1016/S0191-8869(01)00103-9.

Gill, J., Johnson, P. and Clark. M. (2010). *Research methods for managers.* SAGE Publications, Washington DC.

Gregans, S. R., and Graham, S. H. (2013). Depression, physical symptoms, and academic engagement in middle school: A mediational model of the influence of emotional and somatic pain on classroom performance. [UCLA Electronic Theses and Dissertations]. University of California. https://escholarship.org/uc/item/32x152dn#article_main

Gulliver, A., Wysoke, T., Calear, A. L., & Farrer, L. M. (2022). Factors Associated with Engagement in University Life, and Help Seeking Attitudes and Behaviour in First Year Undergraduate Students. *International journal of environmental research and public health, 20*(1), 120. https://doi.org/10.3390/ijerph20010120

Hamaideh, S. H. (2015). Stressors and reactions to stressors among university students. *International journal of social psychiatry, 57*(1), 69-80. https://doi.org/10.1177/0020764010348442

Hasin, D., & Walsh, C. (2020). Cannabis Use, Cannabis Use Disorder, and Comorbid Psychiatric Illness: A Narrative Review. *Journal of clinical medicine, 10*(1), 15. https://doi.org/10.3390/jcm10010015

Hatano, K., Luyckx, K., Hihara, S. et al. (2022). Daily identity processes and emotions in young adulthood: A five-day daily-diary method. *Journal of youth and adolescence.* https://doi.org/10.1007/s10964-022-01629-x.

Hoch, E., Bonnetn, U., Thomasius, R., Ganzer, F., Havemann-Reinecke, U., & Preuss, U. W., (2015). Risks associated with the non-medicinal use of cannabis. *Deutsches Ärzteblatt International, 112* (16), 271–278. https://psycnet.apa.org/record/2015-20391-001

Htet, H., Saw, Y., Nandar, S., Htun, Nang M. M., Mon, K., Cho, S. M., Thike, T., Khine, A., Kariya, T., Yamamoto, E., & Hamajima, N. (2020). Prevalence of alcohol consumption and its risk factors among university students: A cross-sectional study across six universities in Myanmar. *Plos one, 15*(2) https://doi.org/10.1371/journal.pone.0229329.

Hudson, K. F. (2015). Nursing student engagement: student, classroom, and clinical engagement. *International journal of nursing, 4*(1):44–52.

Hudson K, Carrasco R. (2017). Nursing student engagement: taking a closer look. *Open journal of nursing, 7*:193–201. doi: 10.4236/ojn.2017.72017

Hysenbegasi, A., Hass, S. L., & Rowland, C. R. (2005). The impact of depression on the academic productivity of university students. *The journal of mental health policy and economics, 8*(3), 145–151.

Ibrahim, A. K., Kelly, S. J., Adams, C, E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of psychiatric research, 47*, 391-400.

Ireri, A. M. (2015). *Academic identity status and achievement goal orientation as predictors of academic achievement among form three students in Embu County, Kenya*. [Unpublished Doctoral Thesis] Kenyatta University, Kenya. https://www.semanticscholar.org/paper/Academic-Identity-Status-and-Achievement-Goal-as-of-Ireri/830f969b58d0ddfafb03a5f0ac2776de8965fc98.

Jiang, J., & Tanaka, A. (2022). Autonomy support from support staff in higher education and students' academic engagement and psychological well-being. *Educational psychology*, *42*:1, 42-63. https://doi.org/10.1080/01443410.2021.1982866

Kadiyono, A. L., &, Annisa, N. L. (2018). Finding the gap: Student stress and student engagement of first-year undergraduate student from overseas. *1st Sampoerna university-afbe international conference*, https://eudl.eu/doi/10.4108/eai.6-12-2018.2286291

Kaggwa M. M., Arinaitwe I., Nduhuura E., Muwanguzi M., Kajjimu J., Kule M., Ajuna N., Machacha I., Nkola R., Najjuka S. M., Wamala N. K., Bongomin F, Griffiths M. D., Rukundo G. Z., & Mamun M. A. (2022). Prevalence and factors associated with depression and suicidal ideation during the covid-19 pandemic among university students in Uganda: A Cross-Sectional Study. *Frontiers in psychiatry*, https://www.frontiersin.org/article/10.3389/fpsyt.2022.

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in higher education, 38*(5), 758–773. https://doi.org/10.1080/03075079.2011.598505.

Kahu, E. R., & Nelson, K. (2018). Student engagement in the educational interface: Understanding the mechanisms of student success. *Higher education research and development, 37*(1), 58–71. https://doi.org/10.1080/07294360.2017.1344197.

Karlan, D., & Luca, M. (2022). Decision Making and Problem Solving: How to Use Correlation to Make Predictions. *Havard business review.* https://hbr.org/2022/04/how-to-use-correlation-to-make-predictions

Kayanan, P. J. (2017). *Relationship between college student identity development and readiness for change.* [Unpublished Masters Thesis]. Paper 1516639545. http://dx.doi.org/doi:10.21220/W4GM2N

Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents. *International journal of adolescence and youth, 25*:1, 79-93. https://doi.org/10.1080/02673843.2019.1590851.

Khafagy, M., Gomaa, Z. & Elwasify, M. (2021). Substance use patterns among university students in Egypt. *Middle east current psychiatry 28,* 59. https://doi.org/10.1186/s43045-021-00140-6.

King, N., Rivera, D., Cunningham, S., Pickett, W., Harkness, K., McNevin, S. H., Milanovic, M., Byun, J., Khanna, A., Atkinson, J., Saunders, K., & Duffy, A. (2021). Mental health and academic outcomes over the first year at university in international compared to domestic Canadian students. *Journal of American college health,* 1–10. Advance online publication. https://doi.org/10.1080/07448481.2021.1982950.

Klimstra, T. A., Kuppens, P., Luyckx, K., Branje, S., Hale, W. W., Oosterwegel, A., Koot, H. M., & Meeus, W. H. J. (2016). Daily dynamics of adolescent mood and identity. *Journal of research on adolescence, 26*(3), 459–473. https://doi.org/10.1111/jora.12205

Klimstra, T. A., & Schwab, J. R. (2021). Time and identity: An evaluation of existing empirical research, conceptual challenges, and methodological opportunities. *Identity*, 1– 14. https://doi.org/10.1080/15283488.2021.1924722.

Kogan, S. M., Bae, D., Sigfusdottir, I. D., & Kristjansson, A. L. (2021). Mental health, academic engagement, and youths' nonmedical use of stimulants: A latent profile analysis. *Substance use & misuse, 56*(4), 479–483. https://doi.org/10.1080/10826084.2021.1879147.

Kothari, C.R. (2009). *Research Methodology Methods and Techniques*. New Delhi, New Age International Publishers.

Kunnen, E. S. (2021). The relation between vocational commitment and need fulfillment in real time experiences in clinical internships. *Identity,* 1–11. https://doi. org/10.1080/15283488.2021.1932899

La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A selfdetermination theory perspective on attachment, need fulfillment, and well-being. *Journal of personality and social psychology, 79,* 367-384. http://dx.doi.org/10.1037/0022-3514.79.3.367

Leadbeater, B. J., Ames, M. E., & Linden-Carmichael, A. N. (2019). Age-varying effects of cannabis use frequency and disorder on symptoms of psychosis, depression and

anxiety in adolescents and adults. *Addiction (Abingdon, England), 114*(2), 278–293. https://doi.org/10.1111/add.14459.

Li, N. (2019). The association between identity and student engagement in engineering. Undergraduate students. University of Houston Libraries https://hdl.handle.net/10657/5565

Li, Y., Zhang, W., Liu, J., Arbeit, M. R., Schwartz, S. J., Bowers, E. P., & Lerner, R. M. (2011). The role of school engagement in preventing adolescent delinquency and substance use: a survival analysis. Journal of Adolescence, 34(6), 1181–1192. https://doi.org/10.1016/dolescence.2011.07.003

Lovibond P. F. (2015). *DASS Translations*. http://www2.psy.unsw.edu.au/groups/dass/translations.htm

Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety & Stress Scales*. (2nd ed.) Sydney: Psychology Foundation.

Lun, K. W., Chan, C. K., Ip, P. K., Ma, S. Y., Tsai, W. W., Wong, C. S., Wong, C. H., Wong, T. W., & Yan, D. (2018). Depression and anxiety among university students in Hong Kong. *Hong Kong medical journal, 24*(5), 466–472. https://doi.org/10.12809/hkmj176915.

Luyckx, K., Schwartz, S. J., Goossens, L., & Pollock, S. (2008). Employment, sense of coherence, and identity formation: Contextual and psychological processes on the pathway to sense of adulthood. *Journal of adolescent research, 23*(5), 566–591. https://doi.org/10.1177/0743558408322146.

Malmqvist, J., Hellberg, K., Möllås, G., Rose, R., & Shevlin, M. (2019). Conducting the pilot study: A neglected part of the research process? Methodological findings supporting

the importance of piloting in qualitative research studies. *International journal of qualitative methods*. https://doi.org/10.1177/1609406919878341.

Marcia J. E. (1966). Development and validation of ego-identity status. *Journal of personality and social psychology, 3*(5), 551–558. https://doi.org/10.1037/h0023281.

Marcia, J. E. (1989). Identity and intervention. *Journal of adolescence, 12*, 410-410. https://doi.org/10.1016/0140-1971(89)90063-8.

Maroco, J., Maroco, A., Campos, J., & Fredricks, J. (2016). University student's engagement: Development of the University Student Engagement Inventory (USEI). *Psicologia: reflexão e crítica, 29*, 21. https://doi.org/10.1186/s41155-016-0042-8.

Marton, F., & Booth, S. (1997). *Learning and Awareness*. Routledge.

Mastrotheodoros, S., & Motti-Stefanidi, F. (2017). Dimensions of Identity Development Scale (DIDS): A test of longitudinal measurement invariance in Greek adolescents. *European journal of developmental psychology, 14*:5, 605-617, https://doi.org/10.1080/17405629.2016.124117.

Maralani, F. M., Lavasani, M. G., & Hejazi, E. (2016). Structural modeling on the relationship between basic psychological needs, academic engagement, and test anxiety. *Journal of education and learning, 5*(4). https://www.ccsenet.org/journal/index.php/jel/article/view/62517.

Maroco, J., Maroco, A. L., Bonini Campos, J. A. D., and Fredricks, J. A. (2016). University student's engagement: Development of the university student engagement inventory (USEI). *Psicologia: reflexão e crítica 29*:21. doi: 10.1186/s41155-016-0042-8.

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of personality and social psychology, 3*(5), 551–558. https://doi.org/10.1037/h0023281

Martin, F., & Bolliger, D. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online learning journal, 22*. 205-222. https://www.researchgate.net/publication/323560764.

Masese, A. (2020). Upsurge of drug use among university students in Kenya: Causes and consequences. *International journal of research in social sciences, 10*(06), 123-142. https://www.ijmra.us/project%20doc/2019/IJRSS_MAY2019/IJRSSMay19RamaRy.pdf

Maunze, O. R., Abratt, R., & Mingione, M. (2020). Impact of internal branding on student engagement: Insights from a South African university. *Services marketing quarterly, 41*:2, 124-144. https://doi.org/10.1080/15332969.2020.1742979.

Mbuthia, G., Wanzala, P., Ngugi, C.W., & Nyamogoba, H. D. N. (2020). A qualitative study on alcohol and drug abuse among undergraduate (university students) in the coastal region of Kenya. *African journal of health sciences, 33*, (1) https://www.ajol.info/index.php/ajhs/article/view/197772.

McFarland, J., Cui, J., Rathbun, A., & Holmes, J. (2018). *Trends in high school dropout and completion rates in the United States. Compendium Report.* (NCES 2019–117). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education Available from: http://nces.ed.gov/pubsearch

McIntyre, J. C., Worsley, J., Corcoran, R., Harrison Woods, P., & Bentall, R. P. (2018). Academic and non-academic predictors of student psychological distress: The role of social identity and loneliness. *Journal of mental health, 27*(3), 230–239. https://doi.org/10.1080/09638237.2018.1437608.

McNeely, J. (2020). Screening US adults for substance use. *The lancet, 394*: 612.https://doi.org/10.1016/S0140-6736(19)32512-7.

McNeely, J., Wu, L. T., Subramaniam, G., Sharma, G., Cathers, L. A., Svikis, D., Sleiter, L., Russell, L., Nordeck, C., Sharma, A., O'Grady, K. E., Bouk, L. B., Cushing, C., King, J., Wahle, A., & Schwartz, R. P. (2016). Performance of the tobacco, alcohol, prescription medication, and other substance use (TAPS) tool for substance use screening in primary care patients. *Annals of internal medicine, 165*(10), 690–699. https://doi.org/10.7326/M16-0317.

Ministerio de Universidades. (2021). *Datos y Cifras del Sistema Universitario Español*. Publicación 2020–2021; Secretaría General Técnica del Ministerio de Universidades: Madrid, Spain.

Miranda, A. R., Rivadero, L., Bruera, J. Á., Villarreal, V., Bernio, L. Y., de Los Ángeles Baydas, L., Brizuela, M. L., & Serra, S. V. (2020a). Examining the relationship between engagement and perceived stress-related cognitive complaints in the Argentinian working population. *Europe's journal of psychology, 16*(1), 12–31. https://doi.org/10.5964/ejop.v16i1.1832.

Miranda, A. R., Scotta, A. V., Méndez, A. L., Serra, S. V., & Soria, E. A. (2020b). Public sector workers' mental health in Argentina: Comparative psychometrics of the perceived stress scale. *Journal of preventive medicine and public health, 53*(6), 429–438. https://doi.org/10.3961/jpmph.20.229

Mishra, P., Pandey, C. M., Singh, U., Gupta, A., Sahu, C., & Keshri, A. (2019). Descriptive statistics and normality tests for statistical data. *Annals of cardiac anaesthesia, 22*(1), 67–72. https://doi.org/10.4103/aca.ACA_157_18.

Mou, Q., Zhuang, J., Gao, Y., Zhong, Y., Lu, Q., Gao, F., & Zhao, M. (2022). The relationship between social anxiety and academic engagement among Chinese college students: A serial mediation model. *Journal of affective disorders*, (311), 247-253, https://doi.org/10.1016/j.jad.2022.04.158.

Mthimunye, K. D. T., & Daniels, F. M. (2020). Exploring the challenges and efforts implemented to improve the academic performance and success of nursing students at a university in the Western Cape. *International journal of Africa nursing sciences*, https://doi.org/10.1016/j.ijans.2020.100196.12:100196.

Mukerjee, R., Dasgupta, T., & Rubin, B. D. (2018). Using standard tools from finite population sampling to improve causal inference for complex experiments. *Journal of the American statistical association,* 113:522, 868-881. https://doi.org/10.1080/01621459.2017.1294076.

Musyoka, C. M., Mbwayo, A., Donovan, D., & Mathai, M. (2020). Alcohol and substance use among first-year students at the University of Nairobi, Kenya: Prevalence and patterns. *PLoS one 15*(8): e0238170. https://doi.org/10.1371/journal.pone.0238170.

Nakhla, G. (2019). *The relationship between fear of failure, academic motivation and student engagement in higher education: A general linear model.* [Unpublished Doctoral Thesis]. Department of Educational Research, Lancaster University, UK. https://doi.org/10.17635/lancaster/thesis/827.

National Campaign against Drug Abuse Authority. (2007). *Rapid Situation Assessment of Alcohol and Drug Abuse in Kenya, 2007*. https://nacada.go.ke/sites/default/files/2019-10/rapid-assessment-web.pdf.

Ndege, T. (2010). Students' engagement and student retention in Moi University, Kenya. *Global business and economics anthology. II*. 247-257. https://www.researchgate.net/publication/258486981.

NIDA. (2020). National Institute on Drug Abuse Report on Majuana. https://nida.nih.gov/sites/default/files/marijuana-research-report.pdf

NIDA. (2021). *Is there a link between marijuana use and psychiatric disorders*? Retrieved from http://nida.nih.gov/publications/research-reports/marijuana/there-link between-marijuana-use-psychiatric-disorders on 2023, April 5

Nelson, A. R. (2018). *Effects of stress, sleep hygiene, and exercise on academic engagement in undergraduate students.* [Unpublished Doctoral Dissertation]. The University of Arizona. https://repository.arizona.edu/bitstream/handle/10150/630566/

Ng, H. T. N., Zhang, C., Phipps, D., Zhang, R., & Hamilton, K. (2022). Effects of anxiety and sleep on academic engagement among university students, Australian *Psychologist, 57*:1, 57-64, https://doi.org/10.1080/00050067.

Ngasa, S. N., Sama, C. B., Dzekem, B. S., Nforchu, K. N., Tindong, M., Aroke, D., & Dimala, C. A. (2017). Prevalence and factors associated with depression among medical students in Cameroon: a cross-sectional study. *BMC psychiatry, 17*(1), 216. https://doi.org/10.1186/s12888-017-1382-3s

Njoroge, M., Wang'eri, T., & Gichure, C. (2016). Examination repeats, semester deferments and dropping out as contributors of attrition rates in private universities in Nairobi County Kenya. *International journal of education and research, 4*(3), 225-240 https://www.ijern.com/journal/2016/March-2016/17.pdf.

Odhiambo, W. (2021). *Thousands of Students could be deregistered.* University World News, Africa Edition https://www.universityworldnews.com/post.php?story=20210407045342393.

OECD (2018). *Tertiary Graduation Rate*. https://www.oecd-ilibrary.org/education/tertiary-graduation-rate/indicator/english_15c523d3-en.

Oketch-Oboth, J. W. B., (2018). Relationship between stress level, academic performance and psychosocial adjustment among University of Nairobi Students. *International journal of learning and development, 8*, 41. https://doi.org/10.5296/ijld.v8i4.13840

Oliver, J. M. Z., Albornoz, V. C., Barrios, R. A. F., & Tasayco, H. C. (2021). Procrastination, stress and academic engagement in medicine students. *International journal of early childhood special education, 13*(2): 610-618. https://www.int-jecse.net/data-cms/articles/20211202032854pm211099.pdf

Orcan, F. (2020). Parametric or Non-parametric: Skewness to Test Normality for Mean Comparison. *International Journal of assessment tools in education, 7*(2), 255–265. https://doi.org/10.21449/ijate.656077.

OECD. (2011). *How many young people graduate from tertiary education?* In education at a Glance. https://www.oecd.org/education/skillsbeyond-school/48631550.pdf

Osborn, T. L., Venturo-Conerly, K. E., Wasil, A., Schleider, J. L., & Weisz, J. (2019). Depression and anxiety symptoms, social support, and demographic factors among Kenyan high school students. *Journal of child and family studies*, https://doi.org/10.1007/s10826-019-01646-8

Othieno, C. J., Okoth, R., Peltzer, K., Pengpid, S., & Malla, L. O. (2015). Traumatic experiences, posttraumatic stress symptoms, depression, and health-risk behavior in

relation to injury among University of Nairobi students in Kenya. *International journal of psychiatry in medicine, 50*(3), 299–316. https://doi.org/10.1177/0091217415610310

Pachucki, M. C., Ozer, E. J., Barrat, A., & Cattuto, C. (2015). Mental health and social networks in early adolescence: A dynamic study of objectively-measured social interaction behaviors. *Social science & medicine, 125*, 40–50. https://doi.org/10.1016/j.socscimed.2014.04.015.

Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International journal of adolescence and youth, 25*:1, 104-112, https://doi.org/10.1080/02673843.2019.1596823

Peltzer, K., & Pengpid, S. (2017). Association between tobacco use, depression, and anxiety: a cross-national study among university students from 30 low- and middle-income countries. *Journal of psychology in Africa, 27,* 483–487. https://doi.org/10.1080/14330237.2017.1347772.

Peltzer K, Pengpid S. (2014). Tobacco use, beliefs and risk awareness in university students from 24 low, middle and emerging economy countries. *Asian pacific journal of cancer prevention. 15*(22):10033-8. doi: 10.7314/apjcp. 15.22.10033. PMID: 25520065.

Peltzer, K., Pengpid, S., Olowu, S., & Olasupo, M. (2013). Depression and associated factors Among University students in Western Nigeria. *Journal of psychology in Africa, 23*, 459–465. https://doi.org/10.1080/14330237.2013.10820652

Peters, A. K., & Pears, A. (2013). Engagement in computer science and IT — What! A matter of identity? In Proc. *1st International conference on learning and teaching in computing and engineering* (pp.114–121). https://doi.org/10.1109/LaTiCE.2013.42

Peters, L., Peters, A., Andreopoulos, E., Pollock, N., Pande, R. L., & Mochari-Greenberger, H. (2021). Comparison of DASS-21, PHQ-8, and GAD-7 in a virtual behavioral health care setting. *Heliyon, 18*;7(3): e06473. doi: 10.1016/j.heliyon. 2021.e06473. PMID: 33817367; PMCID: PMC8010403.

Petričević, E., Ljubin, G. T., & Rovan, D. (2016). Development and validation of the Academic Engagement Scale (AES) // Abstracts from the 12th Alps Adria Psychology Conference, Review of Psychology. *International journal of Croatian psychological association, 23*(2), 53-107.

Pfeifer, J. H., & Berkman, E. T. (2018). The Development of self and identity in adolescence: Neural evidence and implications for a value-based choice perspective on motivated behavior. *Child development perspectives, 12*(3), 158–164. https://doi.org/10.1111/cdep.12279

Phan, H. P. (2014). Situating psychological and motivational factors in learning contexts. *Education, 4*(3), 53-66. http://dx.doi.org/10.5923/j.edu.20140403.01

Pine, D. S., Cohen, P., Gurley, D., Brook, J., & Ma, Y. (1998). The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Archives of general psychiatry, 55*(1), 56–64. https://doi.org/10.1001/archpsyc.55.1.56

Pulfrey, C., Durussel, K., & Butera, F. (2018). The good cheat: Benevolence and the justification of collective cheating. Journal of Educational Psychology, 110(6), 764–784. https://doi.org/10.1037/edu0000247

Reeve, J., & Tseng, C. M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary educational psychology, 36*(4), 257-267. http://dx.doi.org/10.1016/j.cedpsych.2011.05.002

Reis, D., Hoppe, A., & Schröder, A. (2015). Reciprocal relationships between resources, work and study engagement, and mental health: Evidence for gain cycles. *European journal of work and organizational psychology*, *24*(1), 59–75. https://doi.org/10.1080/1359432X.2013.834891

Rejnö, Å., Nordin, P., Forsgren, S., Sundell, Y., & Rudolfsson, G. (2017). Nursing students' attendance at learning activities in relation to attainment and passing courses: A prospective quantitative study. *Nurse education today*, *50*, 36–41. https://doi.org/10.1016/j.nedt.2016.11.025

Ribeiro, I. J. S., Pereira, R., Freire, I. V., Oliveira, B. G. O., Caotti, C. A., & Boery, E. N. (2017). Stress and quality of life among university students: A systematic literature review. *Health professions education*. http://dx.doi.org/10.1016/j.hpe.2017.03.002

Sandal, R. K., Goel, N. K., Sharma, M. K., Bakshi, R. K., Singh, N., & Kumar, D. (2017). Prevalence of depression, anxiety and stress among school going adolescent in Chandigarh. *Journal of family medicine and primary care, 6*(2), 405–410. https://doi.org/10.4103/2249-4863.219988

Sattar, A. A., Kouar, R., & Gillani, A. A. (2018). Exploring nursing students' engagement in their learning environment. *American journal of nursing research, 6*(1):18–23. doi:10.12691/ajnr-6-1-3. - DOI

Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia and analgesia, 126*(5), 1763–1768. https://doi.org/10.1213/ANE.0000000000002864

Schoeler, T., Theobald, D., Pingault, J. B., Farrington, D. P., Jennings, W. G., Piquero, A. R., Coid, J. W., & Bhattacharyya, S. (2016b). Continuity of cannabis use and violent offending over the life course. *Psychological medicine, 46*(8), 1663–1677. https://doi.org/10.1017/S0033291715003001

Schoeler, T., Theobald, D., Pingault, J. B., Farrington, D. P., Coid, J. W., & Bhattacharyya, S. (2018). Developmental sensitivity to cannabis use patterns and risk for major depressive disorder in mid-life: findings from 40 years of follow-up. *Psychological medicine*, *48*(13), 2169–2176. https://doi.org/10.1017/S0033291717003658

Scotta, A. V., Corte, M. V., & Miranda, A. R. (2022). Insomnia is associated with worry, cognitive avoidance and low academic engagement in Argentinian university students during the COVID-19 social isolation. *Psychology, health & medicine*, *27*:1, 199-214, https://doi.org/10.1080/13548506.2020.1869796

Sher, L. (2020). COVID-19, anxiety, sleep disturbances and suicide. *Sleep medicine,* 70(June), 124. https://doi.org/10.1016/j.sleep.2020.04.019

Singh, G. N., Bhattacharyya, D., & Bandyopadhyay, A. (2020). Calibration estimation of population variance under stratified successive sampling in presence of random non

response. *Communications in statistics-theory and methods*. https://doi.org/10.1080/03610926.2020.1719158

Singh, K., Junnarkar, M., & Sharma, S. (2015). Anxiety, stress, depression and psychosocial functioning of Indian adolescents. *Indian journal of psychiatry, 57*, 4, 367-374. https://doi.org/10.4103/0049-5545.171841

Sinval, J., Casanova, J. R., Marôco, J., and Almeida, L. S. (2018). University student engagement inventory (USEI): Psychometric properties. *Current psychology, 2*, 1–13. doi: 10.1007/s12144-018-0082-6

Skhirtladze, N., Javakhishvili, N., Schwartz, S. J., & Luyckx, K. (2020). Identity development in the domains of future plans/goals and values in Georgian emerging adults and their association with adult and societal identity resolution. *Emerging adulthood, 8*(5), 397–403. https://doi.org/10.1177/2167696819890467

Sugimura, K., Gmelin, J. O. H., van der Gaag, M. A., & Kunnen, E. S. (2021). Exploring exploration: Identity exploration in real-time interactions among peers. *Identity*, 1–18. https://doi.org/10.1080/15283488.2021. 1947819

Talwar, P., Tan, K. W., Kartini, A. G., Nur, F. M. Y. (2016). The goodness-of-fit of DASS-21 models among university students. *Malaysian journal of public health medicine, 16* (3): 219-226.

Tembo, C., Burns, S., & Kalembo, F. (2017). The association between levels of alcohol consumption and mental health problems and academic performance among young university students. *PloS one, 12*(6), e0178142. https://doi.org/10.1371/journal.pone.0178142

Tomacruz, S. (2018). A cry for help: Mental illness, suicide cases rising among youth. *Rappler*. https://www.rappler.com/newsbreak/in-depth/211671-suicide-cases-mental-health-illness-youth-rising-philippines.

Trpcevska, L. (2017). *Predictors of psychological well-being, academic self-efficacy and resilience in university students, and their impact on academic motivation*. [Unpublished Doctoral Thesis], Victoria University.

Tuikong, S. (2020). Admission and Graduation Trends in Universities: The case of Daystar University from 2010 to 2016. *Journal of education, 3*(5), 1-21. https://stratfordjournals.org/journals/index.php/journal-of-education/article/view/557

UNESCO. (2020). Education post-COVID-19: Extraordinary Session of the Global Education Meeting (2020 GEM). New York: UNESCO. Available at: https://en.unesco.org/sites/default/files/gem2020-extraordinary-session-background-document-en.pdf

United Nations Office on Drugs and Crime. (2016). *World Drug Report 2016* https://www.unodc.org/doc/wdr2016/WORLD_DRUG_REPORT_2016_web.pdf

Wachira, K. (2022). University World News, Africa Edition https://www.universityworldnews.com/post.php?story=20220307125656824

Upadyaya, K., & Salmela-Aro, K. (2013). Development of school engagement in association with academic success and well-being in varying social contexts: A review of empirical research. *European psychologist, 18*(2), 136-147. http://dx.doi.org/10.1027/1016-9040/a000143

US Department of Health and Human Services. (2014). *The health consequences of smoking – 50 year's progress: a report of the surgeon general.* Atlanta, GA: Centers for Disease Control and Prevention. https://www.ncbi.nlm.nih.gov/books/NBK179276/

Van Doeselaar, L., Becht, A. I., Klimstra, T. A., & Meeus, W. H. J. (2018). A review and integration of three key components of identity development: Distinctiveness, coherence, and continuity. *European psychologist, 23*, 278– 288. https://doi.org/10.1027/1016-9040/a000334

Van Ryzin, M. J., Low, S., Roseth, C. J. et al. (2022) A longitudinal process model evaluating the effects of cooperative learning on victimization, stress, mental health, and academic engagement in middle school. *International journal of bullying prevention*, https://doi.org/10.1007/s42380-022-00140-y

Vizoso, C., Rodríguez, C., & Arias-Gundín, O. (2018). Coping, academic engagement and performance in university students. *Higher education research & development, 37*(7), 1515–1529. https://doi.org/10.1080/07294360.2018.1504006

Vujanovic, A. A., Wardle, M. C., Liu, S., Dias, N. R., & Lane, S. D. (2016). Attentional bias in adults with cannabis use disorders. *Journal of addictive diseases*, *35*(2), 144–153. https://doi.org/10.1080/10550887.2015.1116354

Wamala, J. (2019). *Academic stress, engagement, and academic performance among third year students in the school of social sciences Makerere University, a case study of sociology students.* [Unpublished Thesis], Makerere School of Social Sciences. http://hdl.handle.net/20.500.12281/6778

Wara, E., Aloka, P. J., & Odongo, B.C. (2018). Relationship between emotional engagement and academic achievement among Kenyan secondary school students. *Academic*

journal of interdisciplinary studies, 7(1):107–118. http://creativecommons.org/licenses/by-nc-nd/3.0/

Watson, D., Clark, L. A., Weber, K., Assenheimer, J. S., Strauss, M. E., & McCormick, R. A. (1995). Testing a tripartite model: II. Exploring the symptom structure of anxiety and depression in student, adult, and patient samples. *Journal of abnormal psychology, 104*(1), 15–25. https://doi.org/10.1037/0021-843X.104.1.15

Webb, S., Burke, P.J., Nichols, S., Roberts, S., Stahl, G., Threadgold, S., & Wilkinson, J. (2017). Thinking with and beyond Bourdieu in widening higher education participation. *Studies in continuing education 39* (2):138.

WHO. Tobacco. (2022). http://www.who.int/mediacentre/factsheets/fs339/en/. Updated 2022. Accessed March 11, 2023.

Wong, Z. Y., & Kaur, D. (2018). The role of vocational identity development and motivational beliefs in undergraduates' student engagement. *Counselling psychology quarterly, 31*(3), 294–316. https://doi.org/10.1080/09515070.2017.1314249

World Health Organization (2017) *Depression and Other Common Mental Disorders: Global Health Estimates.* Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf

Yi, S., Peltzer, K., Pengpid, S., Susilowati, I. H. (2017). Prevalence and associated factors of illicit drug use among university students in the Association of Southeast Asian Nations (ASEAN). *Substance abuse treatment, prevention, and policy 12*, 9. https://doi.org/10.1186/s13011-017-0096-3

Young, T. (2017). *Are Students Stressed? A study of the impact of student engagement on student stress*. [Unpublished Masters Thesis]. https://thekeep.eiu.edu/theses/2696

Zhoc, K. C. H., Webster, B. J., & King, R. B. (2019). Higher Education Student Engagement Scale (HESES): Development and psychometric evidence. *Research in higher education, 60*(2), 219–244. https://doi.org/10.1007/s11162-018-9510-6

Zimmermann, G., Lannegrand-Willems, L., Safont-Mottay, C., & Cannard, C. (2015). Testing new identity models and processes in french-speaking adolescents and emerging adult students. *Journal of youth and adolescence, 44*(1), 127–141. https://doi.org/10.1007/s10964-013-0005-7

Zisook, S., Lesser, I., Stewart, J. W., Wisniewski, S. R., Balasubramani, G. K., Fava, M., Gilmer, W. S., Dresselhaus, T. R., Thase, M. E., Nierenberg, A. A., Trivedi, M. H., & Rush, A. J. (2007). Effect of age at onset on the course of major depressive disorder. *The American journal of psychiatry, 164*(10), 1539–1546. https://doi.org/10.1176/appi.ajp.2007.06101757

APPENDICES

Appendix A: Participant Informed Consent Form

My name is Kositany Conrad I am a Ph.D student from Kenyatta University. I am conducting a study titled "Mental Health and Dimensions of Identity Development as Correlates of Academic Engagement among Third Year Undergraduate Students in Kenyan Public Universities" The information will be used to investigate mental health and dimensions of identity development as correlates of academic engagement among third year undergraduate students in Kenyan public universities. The study may benefit educational stakeholders including university management, lecturers, parents and students.

Procedures to be followed

Participation in this study will require that I ask you some questions in a questionnaire seeking information on mental health, student identity development and academic engagement. You will be required to respond to all the questions. The consent forms and the completed questionnaires will then be collected by the researchers. It will take you approximately 40 minutes to complete this questionnaire.

Voluntarism

Participation in this study is voluntarily. You may ask questions related to the study at any time. You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you receive here or any other organization now or in the future.

Discomforts and Risks

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these questions if you so choose. You may also stop the interview at any time.

Benefits

If you participate in this study you will help us to enhance the understanding of factors that lead to academic engagement and thus enable educators to come up with policies that support student academic engagement and the achievement of high educational outcomes.

Reward

There are no rewards or any payment to you if you participate.

Confidentiality

The questionnaires will be administered within the university. Your name will not be recorded on the questionnaire.

Contact Information

If you have questions about the study call the

Principal investigator; Kositany Conrad Tel. No. 0715251740 or

Supervisor; Dr. Tabitha Wangeri Tel. No. 0724736965 or

Supervisor; Dr. Anthony Muriithi Ireri Tel. No. 0725365915.

However, if you have questions about your rights as a study participant: You may contact Kenyatta University Ethical Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke

Participant's statement

The above information regarding my participation in the study is clear to me. The study has been explained to me and I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time.

Name of Participant……

Signature Date

_____ _____

Appendix B: Student Questionnaire

A. DEMOGRAPHIC INFORMATION

Instruction: Provide the required information or tick the most appropriate response

1. Age _____

2. Gender Male ☐ Female ☐

3. Year of admission _____

4. If year of admission is earlier than 2018 please tick other reason for delay

   ☐ Sickness other than depression anxiety and stress

   ☐ Financial challenges

5. Name of university _____

B. Depression Anxiety Stress Scale

Please read each statement and tick the one that indicates how much the statement applied to you *over the past week.* There are no right or wrong answers. Do not spend too much time on any statement.

		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
1	I found it hard to wind down					
2	I was aware of dryness of my mouth					
3	I couldn't seem to experience any positive feeling at all					
4	I experienced breathing difficulty (eg excessively rapid breathing, breathlessness in the absence of physical exertion)					
5	I found it difficult to work up the initiative to do things					
6	I tended to over-react to situations					
7	I experienced trembling (eg in the hands)					
8	I felt that I was using a lot of nervous energy					

9	I was worried about situations in which I might panic and make a fool of myself					
10	I felt that I had nothing to look forward to					
11	I found myself getting agitated					
12	I found it difficult to relax					
13	I felt down-hearted and blue					
14	I was intolerant of anything that kept me from getting on with what I was doing					
15	I felt I was close to panic					
16	I was unable to become enthusiastic about anything					
17	I felt I wasn't worth much as a person					
18	I felt that I was rather touchy					
19	I was aware of the action of my heart in the absence of physical exertion (eg sense of heart rate increase, heart missing a beat)					
20	I felt scared without any good reason					
21	I felt that life was meaningless					

C. Alcohol and Drug Use Scale

		Daily	Weekly	Monthly	Never
22	In the PAST 12 MONTHS, how often have you used any tobacco product. (for example, cigarettes, kuber, snuff, kiraiko, cigars, pipes, or smokeless tobacco)?				
23	In the PAST 12 MONTHS, how often have used alcohol?				
24	In the PAST 12 MONTHS, how often have you used any drugs including marijuana, cocaine or crack, heroin, methamphetamine (crystal meth), hallucinogens, ecstasy/MDMA?				
25	In the PAST 12 MONTHS, how often have you used any prescription medications just for the feeling, more than prescribed or that were not prescribed for you?				

D. Dimensions of Identity Development Scale

		Strongly Agree	Agree	Uncertain	Disagree	Strongly disagree
27	I have decided on the direction I am going to follow in my life.					
28	I have plans for what I am going to do in the future.					
29	I know which direction I am going to follow in my life.					
30	I have an image about what I am going to do in the future.					
31	I have made a choice on what I am going to do with my life.					
32	I think actively about different directions I might take in my life.					
33	I think about different things I might do in the future.					
34	I am considering a number of different lifestyles that might suit me.					
35	I think about different goals that I might pursue.					
36	I am thinking about different lifestyles that might be good for me.					
37	I am doubtful about what I really want to achieve in life.					
38	I worry about what I want to do with my future.					
39	I keep looking for the direction I want to take in my life.					
40	I keep wondering which direction my life has to take.					

41	It is hard for me to stop thinking about the direction I want to follow in my life.					
42	My plans for the future match with my true interests and values.					
43	My future plans give me self-confidence.					
44	Because of my future plans, I feel certain about myself.					
45	I sense that the direction I want to take in my life will really suit me.					
46	I am sure that my plans for the future are the right ones for me.					
47	I think about the future plans I already made.					
48	I talk with other people about my plans for the future.					
49	I think about whether the aims I already have for life really suit me.					
50	I try to find out what other people think about the specific direction I decided to take in my life.					
51	I think about whether my future plans match with what I really want.					

E. University Student Engagement Inventory

		Always	Frequently	Sometimes	Rarely	Never

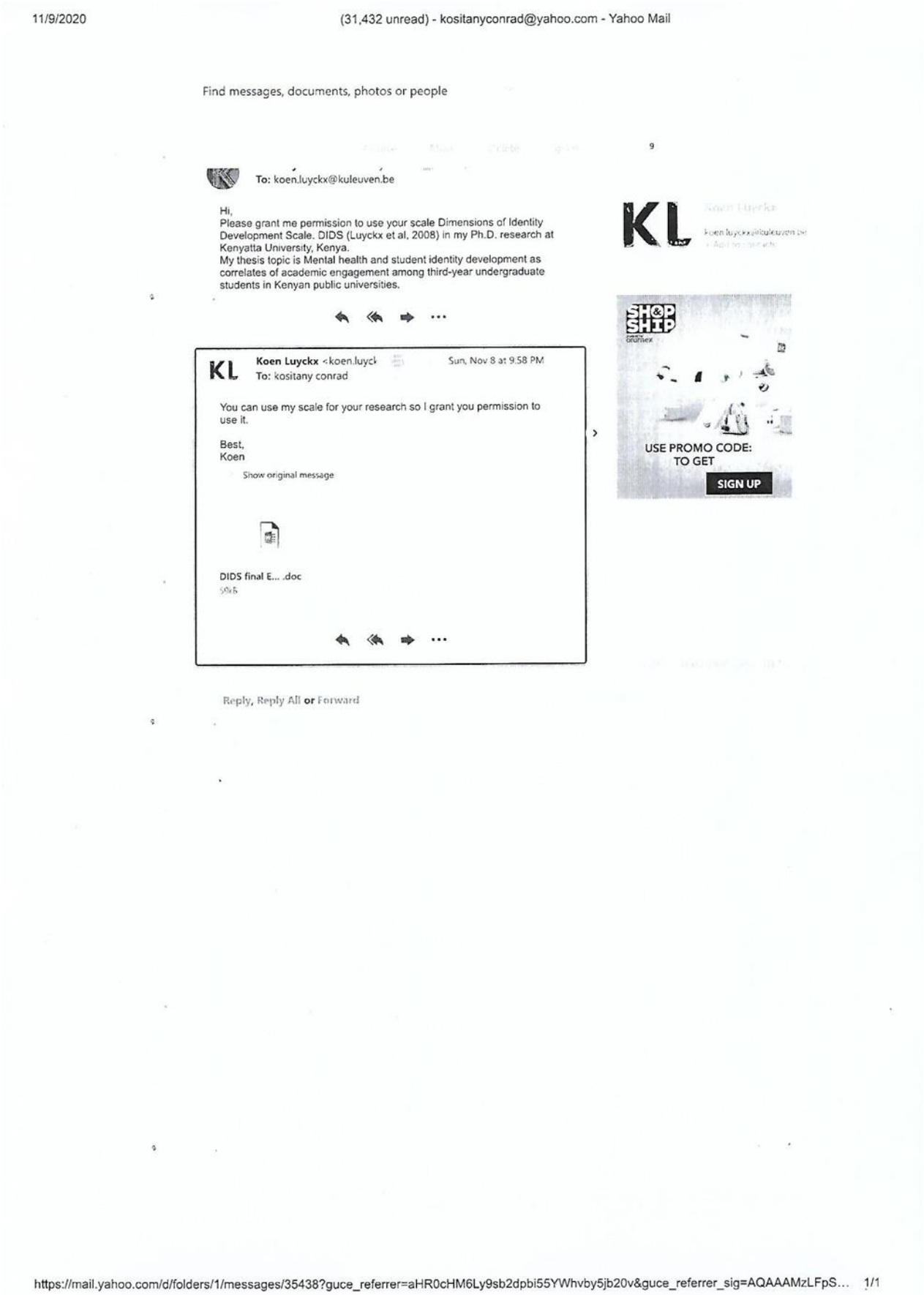
52	I pay attention in class.					
53	I follow the school's rules.					
54	I usually do my homework on time.					
55	When I have doubts, I ask questions and participate in debates in the classroom.					
56	I usually participate actively in group assignments.					
57	I don't feel very accomplished at this school.					
58	I feel excited about the school work.					
59	I like being at school.					
60	I am interested in school work.					
61	My classroom is an interesting place to be.					
62	When I read a book, I question myself to make sure I understand the subject I'm reading about.					
63	I talk to people outside the school on matters that I learned in class.					
64	If I do not understand the meaning of a word, I try to solve the problem, for example by consulting a dictionary or asking someone else.					
65	I try to integrate the acquired knowledge in solving new problems.					

66	I try to integrate subjects from different disciplines into my general knowledge.					

THE END

Thank you for taking time to fill in this questionnaire.

Appendix C: Permission to Use DIDS Scale



11/9/2020 (31,432 unread) - kositanyconrad@yahoo.com - Yahoo Mail

Find messages, documents, photos or people

To: koen.luyckx@kuleuven.be

Hi,
Please grant me permission to use your scale Dimensions of Identity Development Scale. DIDS (Luyckx et al, 2008) in my Ph.D. research at Kenyatta University, Kenya.
My thesis topic is Mental health and student identity development as correlates of academic engagement among third-year undergraduate students in Kenyan public universities.

KL Koen Luyckx <koen.luyck Sun, Nov 8 at 9:58 PM
To: kositany conrad

You can use my scale for your research so I grant you permission to use it.

Best,
Koen

Show original message

DIDS final E... .doc
98kB

Reply, Reply All or Forward

https://mail.yahoo.com/d/folders/1/messages/35438?guce_referrer=aHR0cHM6Ly9sb2dpbi55YWhvby5jb20v&guce_referrer_sig=AQAAAMzLFpS... 1/1

Appendix D: Table for Determining Sample Size

Table for Sample Size Determination

	Variance of the population P=50%					
	Confidence level = 95% Margin of error			Confidence level = 99% Margin of error		
Population Size	5	3	1	5	3	1
500	217	340	475	285	393	485
600	234	384	565	314	452	579
700	248	423	652	340	507	672
800	260	457	738	362	557	763
1000	278	516	906	398	647	943
1500	306	624	1297	459	825	1375
2000	322	696	1655	497	957	1784
3000	341	787	2286	541	1138	2539
5000	357	879	3288	583	1342	3838
10000	370	964	4899	620	1550	6228
25000	378	1023	6939	643	1709	9944
50000	381	1045	8057	652	1770	12413
100000	383	1056	8762	656	1802	14172
250000	384	1063	9249	659	1821	15489
500000	384	1065	9423	660	1828	15984
1000000	384	1066	9513	660	1831	16244

Note. Adapted from " *Research Methods for Managers*," by J. Gill, P. Johnson, and M. Clark 2010, SAGE Publications. Copyright 2010.

Appendix E: Permission to Collect Preliminary Data

Pls too
Please assist
This Student access
data that we may have
on the topic
Jan 20, 2020

UNIVERSITY EDUCATION
20 JAN 2020
999 - 00200, NAIROBI

KENYATTA UNIVERSITY
SCHOOL OF EDUCATION
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

P. O. BOX 43844-00100
NAIROBI, KENYA
TELEPHONE 8710901 Ext 4180
Email: edupsychology@ku.ac.ke

20th January, 2020

From: Chairman,
Educational Psychology Department
To: Director,
Commission for University Education
Nairobi.

Dear Sir.

RE: KOSITANY CONRAD – E83/39058/2017

Mr. Kositany has been our Ph.D Student at the Department of Educational Psychology since September 2017.

His Ph.D Thesis is entitled *'Mental health as a predictor of academic engagement among third year undergraduate students in public universities in Kenya"*

By this letter, I am kindly requesting you to grant approval for Mr. Kositany to collect Preliminary Data for his study.

KENYATTA UNIVERSITY
DEPARTMENT OF
20 JAN 2019
EDUCATIONAL PSYCHOLOGY
P. O. Box 43844, NAIROBI

Yours faithfully,

DR. DAVID KARIUKI
CHAIRMAN, EDUCATIONAL PSYCHOLOGY DEPARTMENT.

Appendix F: Research Authorization

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: E83/39058/17 **Date:** 31st August, 2021

The Director General,
National Commission for Science, Technology & Innovation,
P.O. Box 30623-00100,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MR. KOSITANY CONRAD - REG. NO. E83/39058/17

I write to introduce Mr. Kositany who is a Postgraduate Student of this University. He is registered for a Ph.D. degree programme in the **Department of Educational Psychology in the School of Education.**

Mr. Kositany intends to conduct research for Ph.D. thesis entitled, **"Mental Health and Dimensions of Identity Development as Correlates of Academic Engagement among Third Year Undergraduate Students in Kenyan Public Universities".**

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
DEAN, GRADUATE SCHOOL

RM/cao

Appendix G: Approval of Research Proposal

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 31st August, 2021

REF: E83/39058/17

TO: Mr. Kositany Conrad
C/o Department of Educational Psychology
KENYATTA UNIVERSITY

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that the Graduate School Board at its meeting 25th August, 2021 approved your Ph.D. Research Proposal entitled "Mental Health and Dimensions of Identity Development as Correlates of Academic Engagement among Third Year Undergraduate Students in Kenyan Public Universities".

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking and Progress Report Forms. The Forms are available at the University's Website under Graduate School webpage downloads.

By copy of this letter, the Registrar (Academic) is hereby requested to grant you substantive registration for your Ph.D. studies.

Thank you

REUBEN MURIUKI
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Department of Educational Psychology
Registrar (Academic) Att; Mr. Richard Chweya

Supervisors:

1. Dr. Tabitha Wang'eri
   C/o Department of Educ. Psychology
   KENYATTA UNIVERSITY
2. Dr. Anthony Ireri
   C/o Department of Educ. Psychology
   KENYATTA UNIVERSITY

EM/cao

Appendix H: Number of Third Year Undergraduates in Selected Public Universities

Enrolment for 2019/2020 Academic Year

Student Enrolment for Universities Selected for the Current Study

Public universities	**2019/2020 academic year**		
	Male	Female	
Kenyatta University	7469	7369	14838
Egerton University	1895	1510	3405
Maseno University	2631	1966	4597
Masinde Muliro University of science and Technology	3024	2226	5250
Dedan Kimathi University of Technology	1027	466	1493
Chuka University	2040	1199	3239
Technical University of Mombasa	1813	762	2575
Garissa University	208	92	300
Total	20107	15590	35697

Note. Data from Commission for University Education (2020)

Appendix I: Approval from Kenyatta University Ethics Review Committee

KENYATTA UNIVERSITY
CENTRE FOR RESEARCH ETHICS AND SAFETY

Fax: 8711242/8711575 **P. O. Box 43844,**
Email: chairman.kuerc@ku.ac.ke
Nairobi, 00100

Tel: 8710901/12

Website: www.ku.ac.ke
Our Ref: **KU/ERC/APPROVAL/VOL.1** Date: 12 /11/2021

Kositany Conrad
P.O BOX 43844-00100
Nairobi.

Dear Sir,

RE: MENTAL HEALTH AND DIMENSIONS OF IDENTITY DEVELOPMENT AS CORRELATES OF ACADEMIC ENGAGEMENT A MONG THIRD YEAR IN UNDERGRADUATE STUDENTS IN KENYA PUBLIC UNIVERSITIES

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is **PKU/2404/I1538.** The approval period is **12th /11/2021**

to 12th/11/2022.

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification

Appendix J: Research Clearance Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **299597**

Date of Issue: **23/September/2021**

RESEARCH LICENSE

This is to Certify that Mr.. CONRAD KOSITANY of Kenyatta University, has been licensed to conduct research in Nairobi on the topic: MENTAL HEALTH AND DIMENSIONS OF IDENTITY DEVELOPMENT AS CORRELATES OF ACADEMIC ENGAGEMENT AMONG THIRD YEAR UNDERGRADUATE STUDENTS IN KENYAN PUBLIC UNIVERSITIES for the period ending : 23/September/2022.

License No: **NACOSTI/P/21/13035**

299597

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix K: Map of Regions in Kenya