

**EMOTIONAL SELF-REGULATION AND RISK TAKING BEHAVIOUR AS  
PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG FORM TWO  
STUDENTS IN NAIROBI CITY COUNTY, KENYA**

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**A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
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PHILOSOPHY (EDUCATIONAL PSYCHOLOGY) IN THE SCHOOL OF  
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## **DECLARATION**

I confirm that this thesis is my original work and has not been presented in any other University/Institution for certification. The thesis has been complemented by referenced works duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other works, including the internet, the sources are specifically accredited through referencing in accordance with anti-plagiarism regulations.

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## **DEDICATION**

This thesis is dedicated to all adolescent students struggling with emotional regulation challenges with no one to hold their hands. It is also dedicated to all teachers who never tire in their efforts to serve students with love and patience.

## **ACKNOWLEDGEMENT**

To Almighty God who blessed me with good health and resources to undertake this challenging task. My sincere gratitude to my supportive supervisors Dr. Philomenah Ndambuki, and Dr. Samuel Mutweleli who guided me throughout this study. A big thank you goes to my dear friend Dr. Maria Wacera whose encouragement always kept me on my toes even when I was on the verge of giving up. I cannot forget Dr. Theresa Kinai and Dr. Josephine Mutua who willingly and patiently read my work and advised accordingly. May God bless you.

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## **ABBREVIATIONS AND ACRONYMS**

<b>AIS</b>	Adolescent Invulnerability Scale
<b>BOM</b>	Board of Management
<b>CR</b>	Cognitive Reappraisal
<b>EI</b>	Emotional Intelligence
<b>ERQ</b>	Emotional Regulation Questionnaire
<b>ERQ-CA</b>	Emotional Regulation Questionnaire for Children and Adolescents
<b>ES</b>	Expressive Suppression
<b>ESR</b>	Emotional Self-Regulation
<b>GPA</b>	Grade Point Average
<b>KCSE</b>	Kenya Certificate of Secondary Education
<b>KICD</b>	Kenya Institute of Curriculum Design
<b>KNEC</b>	Kenya National Examination Council
<b>MOE</b>	Ministry Of Education
<b>NACOSTI</b>	National Commission for Science, Technology and Innovation
<b>VCT</b>	Voluntary Counseling and Testing

## ABSTRACT

Low academic achievement in Nairobi County has been of great concern especially in the years 2018 to 2021. Research studies that have been done attribute this to various causes including environmental and some psychological factors. More specifically, the current research focused on examining the predictive significance of students' emotional self-regulation and risk taking behavior on academic achievement among secondary school students in Kenya. Finally, sex differences and the prediction model were also examined. Golman's Emotional Intelligence Theory and Elkind's Adolescent Egocentrism theories guided the study. The study adopted correlational research design. The target population was the entire 2019 form two students (31,420) in secondary schools, Nairobi County. To select research location, purposive sampling was used while schools and participants were selected using stratified and simple random sampling procedures. The study sample comprised of 914 students from eight public secondary schools. Adapted scales were used to assess emotional self-regulation and risk taking behavior. In order to measure students' academic achievement, records of examination grades maintained in individual schools were examined. A pilot study involved 34 students in one co-educational day school within the county. This helped to establish and enhance validity and reliability of the study instruments. Both descriptive and inferential statistics were used to analyze the collected data. More specifically, the following tests were used: Pearson's Product Moment Correlation Coefficient, multiple regression and independent samples t-test. Hypotheses were tested at  $p < .05$  level of significance. Multiple regression analysis was used to determine the prediction model. The study results revealed that emotional self-regulation significantly predicted academic achievement  $r(738) = .10$   $p < 0.05$ . Among the two strategies of emotional self-regulation, cognitive reappraisal had the highest predictive weight on academic achievement. Further, it was found that risk taking behavior and its subsequent domains did not significantly predict academic achievement. Significant sex differences were found in emotional self-regulation and cognitive reappraisal and were in favor of male students. Finally, the equation for predicting academic achievement from students' emotional self-regulation and risk taking behavior was found to be significant. Emotional self-regulation had the highest significant weight in predicting academic achievement in contrast to risk taking behavior. The exploratory analysis revealed that students' sex and age had an effect on academic achievement given emotional self-regulation and risk taking behavior. Finally, it was concluded that emotional self-regulation is an important factor in students' academic achievement. Therefore, the study recommended that educators should consider enhancing students' emotional self-regulation and the strategy found to have a positive predictive weight on academic achievement so as to improve academic achievement.

## **CHAPTER ONE**

### **INTRODUCTION AND BACKGROUND TO THE STUDY**

#### **1.1 Introduction**

The chapter discussed background to the study, problem statement, the study purpose followed by research objectives and hypotheses. The significance, scope, limitations and delimitations of the study are also covered. Finally, the theoretical as well as conceptual framework plus operational definition of terms are also given.

#### **1.2 Background to the Study**

Academic achievement is measured through scores that students obtain in examinations. Due to this reason, a lot of resources are directed towards preparation of students' success in the examinations by all stakeholders concerned (Bucker, Nurayadin, Simunsmeier, Schneider, & Luhmann, 2018). Therefore, low achievement in academic work is a major concern for individual students and society in general (Daka, 2019).

Daka and Changwe (2020) opined that, academic achievement is important for both concrete and abstract reasons. They observed that, a good grade point average (GPA) in high school increases a student's chance of admission into a college of choice, improves their eligibility for scholarship and eventually job opportunities. Even in the work place, newly graduated students are considered for job placement on the basis of their academic achievement. Researchers

worldwide have demonstrated that low academic achievement can negatively affect students' expected participation in development (Bamidele & Zakaria, 2015, Daka, Banda & Namafe, 2017).

Globally, studies have reported low academic achievement in examinations. This includes in developed countries like the United States of America (USA). Drew (2017) reported a decline in academic achievement of students in USA as compared to their counterparts from advanced industrial nations. This is in spite of the government and schools putting more efforts in initiating reforms within the education sector to improve academic results (Partelow et al., 2018).

The problem of low academic achievement has been reported as one of the many challenges facing educational systems in many African countries. In Botswana, for instance, Mphale and Mhlauli (2017) reported a declining trend in academic achievement since 2010. Similar observations were made by Mwakwija (2017) who noted a deterioration of educational standards and quality, based on the high numbers of students who failed examinations at levels below university. The scenario was the same in Ghana where according to Oyediran (2018), the education system has been in a crisis for many years, despite the successive government's efforts to support the sector. Similarly, low academic achievement has been observed in Tanzania, (Maganga, 2017).

In Kenya, results of the Kenya Certificate of Secondary Education (KCSE) have been on a downward trend year after year. This is the examination that enables those who have performed well to transit to University and to other tertiary institutions. Poor performance therefore means a good percentage of young men and women miss out on quality higher education. Individuals end up missing out on promotion of values, development of individual and their contribution to society's transformation (Republic of Kenya, 2016). In spite of the efforts made to improve quality of education, majority of students still perform poorly in the KSCE examination (Kenya National Examination Council (2018). Statistics for years 2016 to 2018 indicate that students who obtained grade C+, the minimum university entry requirement, averaged only 14 percent of the total candidates. (MOE) Nairobi Province Education Board, KCSE results analysis, (See Appendix D). What is more, in 2016 and 2017, only 141 and 142 candidates nationally scored grade A respectively. Although the number of As improved to 315, and C+ candidates went up from 70,377 to 90,377, the number of candidates scoring low grades continued to raise concern, as the number of candidates who did not make the cut-off grade was still high. In 2017, the number of those who scored C+, was 70,073 (11.38%) compared to 88,929 (15.41%) in 2016. In the 2018, a minimum improvement was noted with 90,377 out of the slightly over 600,000 attaining C+ (13.77%). More than half of the candidates (313,057) score below D, with above 30,840 only managing the lowest grade, E.

In the years between 2019 and 2021, the number of candidates with minimum university entry qualification of C+ ranged between 17.4% and 19.03%. In 2019, the number was 125,746 (18.02%, 2020, 143,140 (19.03%) and 2021, 145,145 (17.4%). This was in the full speech delivered by the then CS of education Professor Magoha (Ministry of Education, 10, May, 2021). Although this was a rise from the previous years, the margin is negligible considering the rising number of candidates sitting for KCSE examination each year.

In Nairobi County, the target location for this study, academic achievement of students continue to drop at an alarming rate (Ministry of Education, state Department of Basic Education, 2017). Statistics in Nairobi City County reported a result of 4 points mean out of the maximum 12 (County Director's Office, 2017). Four percent of over twenty five thousand candidates who sat the KCSE in the county only managed an average grade of D+. Moreover, those who scored less than grade D increased from 35.8 percent in 2015 to 58.1 percent in 2016. Only one in five students scored at least C+ that would enable them proceed to university; a decrease from one in three in the two previous years ( KNEC, 2016). There was no improvement in 2017 and 2018 either. Out of the total students who sat KCSE in the mentioned years, percentages of those who scored C+ and above, were less than 15.4% respectively( See Appendix G). Additionally, only 10% of the said students scored the minimum university entry grade; which was lower than the national percentage. It is this dismal performance that prompted this

research study whose objective was to examine how the variables predicted academic achievement.

Emotional self-regulation refers to the understanding, acceptance, and modulation of emotions is a process that children and adolescents carry out in order to manage their psychosocial environment, orienting themselves towards achievement of their mental health (Lissa et al., 2019). Among other functions, emotional self-regulation helps in management and expression of emotions. Failure to control or manage such emotions could cause behavior problems including risk taking tendencies that lead to low academic achievement (Bamidele & Zakaria, 2015). There are two strategies within emotional self-regulation namely cognitive reappraisal and expressive suppression.

Cognitive reappraisal is one of the strategies of emotional self-regulation. It refers to the ability to rethink a potentially emotion-eliciting event such as taking an examination, hence improving psychological state; leading to proper concentration that in turn results in positive outcomes such as high academic achievement. The other strategy is expressive suppression. This is an attempt to conceal, withhold or put a check on the way one behaviorally responds to similar events, resulting in negative outcomes, which may include low academic achievement. Cognitive reappraisal is associated with better coping skills as well as general psychological wellbeing. Nevertheless, empirical studies indicate that

both strategies have a significant joint effect as well as relative weight on academic achievement (Al-Badareen, 2016).

Due to heightened hormonal activity, adolescents who fail to control their emotions may easily get involved in risk taking behaviors unlike adults (Crone et al. 2008 as cited by Scalucci, 2018). The behavior of risk taking has been associated with failure to apply appropriate emotional self-regulation strategies. On his part, Wang et al. (2015), risk taking behavior is informed by an individual's perception of potential harm that they might be exposed to within their environment; which in turn, determines behavioral response. Some of the prevalent risk behaviors include smoking, anti-social behavior, hazardous alcoholic consumption and unprotected sexual intercourse; and are associated with increased risk of poor academic attainment, future morbidity and premature mortality. Other risk taking behaviors include drug abuse, binge drinking and pornography. Such behaviors tend to interfere with concentration in school work, hence low academic achievement.

According to Duggan et al., (2001), adolescents' feelings of invulnerability towards harmful situations, can be classified into three levels; danger, general and interpersonal invulnerability depending on the potential risks they face. Danger invulnerability refers to felt risk to external danger like car accidents, drug use and drinking alcohol. General invulnerability refers to psychological distress, while interpersonal invulnerability is about social disappointment or risk posed by

other peoples' opinions. Danger invulnerability relates with the personal fable tenet which makes adolescents feel they are magically immune to natural laws and consequences. General and interpersonal invulnerability is related to imaginary audience tenet which makes adolescents feel self-conscious as they believe they are under scrutiny from other people. The three are all predictive of negative consequences likely to distract a learner's focus from learning activities and lead to low academic outcomes. The current research aimed at determining how feelings of invulnerability interact with emotional self-regulation to predict academic achievement especially among students in Nairobi City County, Kenya.

Studies conducted locally have identified various elements that predict academic achievement of students. Some of the researchers focused on predictive factors of academic achievement like school and home environment (Kariuki, 2017; Obura, 2019). A second set of research studies looked into ways in which academic achievement is predicted by students' individual circumstances such as achievement goal orientation, self-motivation, learning strategies Gachigi, 2019; Mutua, 2018; Ng'ang'a, 2018). However, few if any, have focused on the combined role of students' emotional self-regulation and risk taking behavior in academic achievement.

The average age of students in form two is 15 years. According to human development, this is the period of adolescence when students are likely to experience heightened emotions. Emotional self-regulation then becomes an

important factor in the students' general well-being including in academic achievement. Studies conducted in the western world singled out students' emotional self-regulation as one of the factors that affect academic outcomes (Pekrun, 2019). It was necessary to conduct a study on similar constructs in the Kenyan context for comparison purposes.

### **1.3 Statement of the Problem**

The persistent low pass rate in national examinations by secondary school learners for the last four years has been of concern in Kenya. The situation is the same in Nairobi County which is the capital city of Kenya. The low grades in KCSE may translate to low transition into higher educational levels and this may limit employability. More so, for those who wish to pursue university education in order to train in courses that could see them get into professions of their choice. Courses in question include medicine, engineering or law, and would require a student to have acquired high grades in KCSE. Therefore, failure to achieve high grades in KCSE may have negative implications on the future technological and moral development of the county as well as at the national level. To counter this trend, some intervening measures need to be put in place, hence the reason behind under taking further studies on factors that are likely to predict academic achievement.

A majority of studies conducted in developed countries according to study background, have found that emotional self-regulation and risk taking behavior in students predict academic achievement (Pekrun 2017).The studies were not only

done in countries with different backgrounds and education systems, but they focused on students in different levels such as university, college and elementary schools.

In Kenya, studies that have predicted academic achievement investigated factors like; parental environment, learning strategies and students' motivation. Despite the many studies conducted previously, the problem of low academic achievement still persists. Therefore, the central problem of the current study was to examine the extent to which emotional self-regulation and risk taking behavior predict academic achievement among form two students in Nairobi City County. Findings from the study will add on local empiric literature which could provide the linkage needed to reverse the low academic achievement in the county.

#### **1.4 Purpose of the Study**

The ultimate purpose of the research was to determine the extent to which emotional self-regulation and risk taking behavior predicted academic achievement among form two students in Nairobi County, Kenya. The significance in sex differences of students' emotional self-regulation and risk taking behavior were also examined.

#### **1.5 Objectives of the Study**

This research study was guided by the subsequent objectives to:

- i. Find out the extent to which emotional self-regulation predicts academic achievement.
- ii. Find out the extent to which students' risk taking behavior predicts academic achievement.
- iii. Find out if there are sex differences in students' emotional self-regulation and risk taking behavior.
- iv. Establish the prediction model of academic achievement from students' emotional self-regulation and risk taking.

### **1.6 Research Hypotheses**

The research was based on the subsequent research hypotheses:

H<sub>a1</sub>: Emotional self-regulation significantly predicts academic achievement.

H<sub>a2</sub>: Risk taking behavior significantly predicts academic achievement.

H<sub>a3</sub>: There are significant sex differences in students' emotional self-regulation and risk taking behavior.

H<sub>a4</sub>: There is a significant predictive model of academic achievement based on emotional self-regulation and risk taking behavior.

### **1.7 Assumptions of the Study**

In this study, it was assumed that each student's level of emotional self-regulation and risk taking behavior was different. It was also assumed that the students' examination results provided reliable and valid measure of academic achievement. Finally, it was assumed that the students gave honest responses to questionnaire items and that the students were exposed to similar conditions given

that they were all drawn from same category of schools using a common curriculum. Finally, that the study variables were related and predicted each other in the direction required by the theory.

### **1.8 Limitations of the Study**

The sample was made up of students in Nairobi County only. Only form two students in public secondary schools participated. Consequently, results of the study may be generalized only to students with similar features. A correlational research design was used and therefore conclusions on causal relationships among the measured variables could not be made. Since data collection was through self-report, an element of social desirability is expected. To counter this, students were assured of confidentiality and requested not to write their names on the questionnaires.

### **1.9 Delimitations of the Study**

The students who participated in the study were drawn from only form two. They were picked from eight public secondary schools in county. The rationale behind choosing students in this class was informed by the fact that, they are right in their mid-adolescence when emotional upheaval is at its peak. In Kenya, entry age at class one is 6 years old, so form two students are generally expected to be 15 years old. Out of the many factors that could determine academic achievement, only two namely; emotional self-regulation and risk taking behavior were addressed.

## **1.10 Significance of the Study**

The study outcome may be useful to school administrators and teaching staff as they might focus on equipping students with appropriate emotional self-regulation strategies to enhance emotional control. A deliberate effort could also be made to address sex differences in relation to the two constructs among secondary school students. Finally, it is envisaged that. The results of this research may provide additional literature on factors that predict academic achievement, hence become a point of departure for future research.

## **1.11 Theoretical and Conceptual Framework**

### **1.11.1 Theoretical Framework**

Theories that anchored the current research included: Goleman's Model of Emotional Intelligence Theory (2001) and Elkind's Theory of Adolescent Egocentrism (1967).

#### **a. Emotional Intelligence Theory (Goleman, 2001)**

Goleman popularized the model of emotional intelligence that equips one with the ability to not only understand complex emotions, such as feeling two emotions at the same time, but to also distinguish and transition from one to the other successfully. According to the theory, the role of emotional intelligence is to enable one regulate emotions. Emotional self-regulation can be achieved at two levels: cognitive reappraisal and expressive suppression. Among the two, cognitive reappraisal represents the most effective emotional regulation strategy as it allows rethinking of a situation before acting. Students who apply cognitive

reappraisal concentrate better in school work because they take time to re-think their actions. Expressive suppression on the other hand, is regarded as generally ineffective emotional regulation strategy as it inhibits expression of emotions causing stress. The outcome of this is poor academic achievement due to lack of concentration. Further, application of the correct emotional regulation strategy aids in avoiding risk taking decisions that could harm one.

Golemans' model has been used in studies by other researchers with positive outcomes (Nzomo, 2012; Oromo, 2015). For purposes of the current study, the model is used to address emotional self-regulation as related to academic achievement in students. The model is important in demonstrating how students can regulate their emotions by applying the appropriate strategy to facilitate academic achievement. The theory was insufficient in demonstrating the link between emotional self-regulation and risk taking behavior in enhancing a higher academic achievement. Therefore, a second theory was necessary to help illustrate the interrelationship between emotional self-regulation and risk taking behavior in facilitating academic achievement.

The model used is Egocentrism Theory (Elkind, 1967).

#### **b. Adolescent Egocentrism Theory (Elkind, 1967)**

Elkind (1967) advanced Piaget's (1958) theory of cognitive development, which proposed that most adolescents are at the formal operational stage of development. This is the point where the young adults can think abstractly and

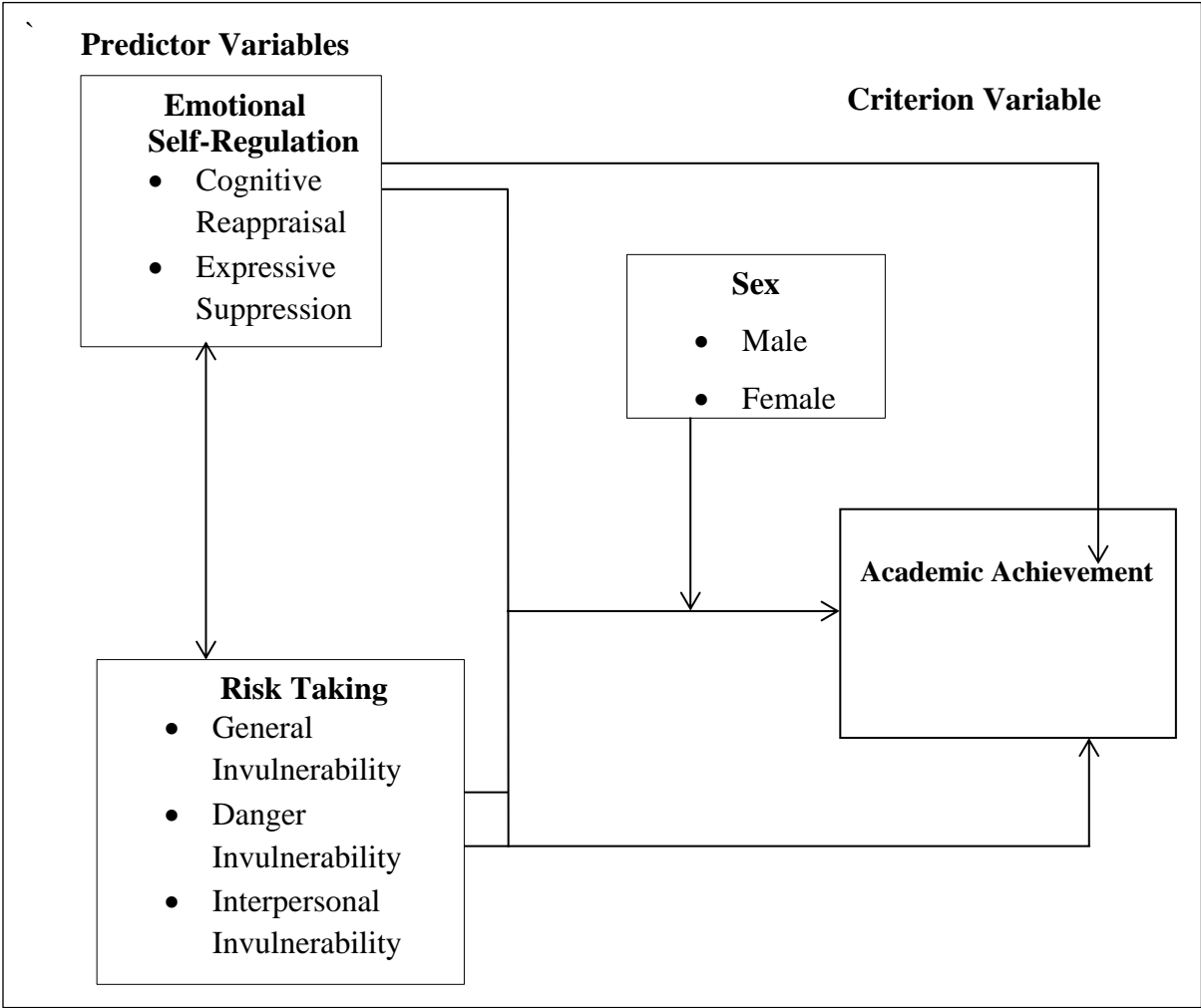
logically. However, even with the enhanced cognitive abilities and awareness of how to cope better with varied emotional states, many adolescents fail to effectively control their emotions. Hence, the period of adolescence becomes one of increased vulnerability to unpleasant outcomes (Bartolome et al., 2016).

Further, according to Elkind, adolescents' thinking is limited by adolescent egocentrism. The theory proposes two specific but related constructs; imaginary audience and personal fable. Imaginary audience refers to a psychological state where the adolescent senses that they are under constant scrutiny from everyone. This makes them self-conscious and their thinking may be affected negatively. Personal fable gives them a sense of invulnerability which in most cases is associated with risk taking behavior. It makes adolescents experience a feeling of false immunity to any form of danger. They believe that they have a mission in life and problems cannot befall them yet. This feeling of being magically protected from getting harmed is partly responsible for their involvement in risky behaviors (Elkind, 1967).

This model is helpful in explaining that learners at this developmental stage experience emotional upheaval that may call for emotional self-regulation to avoid negative outcomes in learning. Emotional intelligence theory was found deficient in explaining the emotional upheaval mainly found in adolescents, hence need for a second theory. Therefore, the two theories were considered relevant

anchor in an attempt to explore the correlation between emotional self-regulation and risk taking behavior in predicting academic achievement.

**1.11.2 Conceptual Framework**



**Figure 1.1: Relationships among study variables**

*Note* —————> Direction of relationship

**Source: Researcher conceptualization (2019)**

Figure 1.1 presented all the three variables and their hypothesized relationship. The two predictor variables were emotional self-regulation and risk taking behavior. The outcome variable was academic achievement. Emotional self-regulation was at two levels namely cognitive reappraisal and expressive suppression. Risk taking behavior was at three levels namely general invulnerability, danger invulnerability and interpersonal invulnerability. The outcome variable was academic achievement which was hypothesized to be predicted by emotional self-regulation and risk taking behavior. Sex differences in emotional self-regulation and risk taking behavior were also hypothesized.

## **1.12 Operational Definition of Terms**

**Academic Achievement:** Mean score obtained in mid and end of term one, form two 2019 examinations.

**Cognitive Reappraisal:** The score a student obtained in ERQ-CA items indicating their ability to rethink emotion eliciting events hence improve psychological state.

**Danger invulnerability:** The score a student obtained in AIS items indicating their personal sense of harm posed by physical risk.

**Emotional Self-Regulation:** The score a student obtained in a self-report questionnaire on their ability to control their emotions.

**Expressive Suppression:** The score a student obtained in the items indicating their inability to display their emotions resulting in negative outcomes.

**General Invulnerability:** The score a student obtained in AIS items indicating their personal perception when faced by psychological risk.

**Interpersonal Invulnerability:** The score a student obtained in AIS items indicating their sense of harm when faced by social risk.

**Risk Taking Behavior:** The score a student obtained in AIS items and their interpretation of the situations' potential riskiness.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

The chapter presented literature associated with the variables under study based on correlation between adolescent emotional self-regulation, risk taking behavior and academic achievement. Sex differences in emotional self-regulation and risk taking plus predictive value on academic achievement from emotional self-regulation and risk taking behavior are also discussed. Lastly, reviewed literature was summarized and gap identification discussed.

#### **2.2 Emotional Self-Regulation as a Predictor of Academic Achievement**

Empirical studies that have directly examined the correlation between emotional self-regulation and academic achievement were hardly available. However, available literature findings indicate that emotional regulation strategies relate differently with academic achievement.

A study by Al-badareen (2016) examined the correlation between emotional self-regulation and academic achievement. The Emotional Regulation Questionnaire (ERQ) was used in the study with a sample of 386 students from Jordan Hashemite University. The results showed a significant joint effect and relative influence of cognitive reappraisal and expressive suppression on academic achievement. Al-badareen's results seem to support earlier research findings that emotional self-regulation strategies influence academic achievement. These

results were derived from a sample of undergraduate students, while secondary school students participated in the present study. Further, data on emotional self-regulation was evaluated using the ERQ questionnaire. The current study used Emotional Regulation Questionnaire for Children and Adolescents (ERQ-CA) scale. This gives room for comparison of the results given the differences in the study sample, instruments and location.

Another study by Hafiz (2015) investigated the association between the two strategies of emotional self-regulation and academic achievement. The sample comprised 127 Psychology undergraduates between ages 21-25 years old from International University of Malaysia (ILUM). The study sample was made up of students from different cultural backgrounds. Data was collected using Emotional self-regulation questionnaire (ESQ). Research findings revealed no significant correlation between emotional self-regulation strategies and students' academic achievement. Further, a regression model revealed no predictive weight when the two models were combined. A notable difference between the two studies is in the sample and data collection technique. The university students used may have achieved higher levels of emotional self-regulation due to their age. The current study used Emotional Self-Regulation Scale for Children and Adolescents to collect students' data which may have accounted for the differences in results.

In a correlational study, Verzeletti et al. (2016), used 663 Italian adolescent students and the Emotional Regulation Questionnaire (ERQ), to establish the part

played by emotional self-regulation strategies and psychosocial wellbeing in adolescence. The results indicated that more reliance on cognitive reappraisal related positively to better wellbeing outcomes as well as positive emotions. However, a greater reliance on expressive suppression was conversely associated with lower wellbeing levels and negative emotions. It was therefore necessary to conduct another study with a sample from a different geographical environment for comparison. Additionally, the sex differences in the specific emotional self-regulation strategies were not examined. This was one of the objectives in the current study.

A related study was conducted by Mega et al. (2014), using a sample of 5805 undergraduates. The study used the Self-regulated, Learning, Emotions and Motivation Computerized Battery (LEM-B), composed of three self-report questionnaires. The undergraduate students' mean age was 22 years. The main objective of the study was to find out how academic achievement was predicted by emotions, self-regulated learning and motivation. Results reported a significant influence of emotions on self-regulated learning which in turn influenced academic outcome. Considering the difference in sample, location and measuring instruments, it was interesting to compare findings with those of a similar research in Kenya.

A related study by Bahrami (2017), explored the relationship between cognitive emotional regulation and academic buoyancy with self-handicapping as a

mediator variable. The sample consisted of 323 Iranian students who were randomly selected using a multi-grade cluster sampling method. The researcher used a descriptive correlation design. Results indicated a significant correlation between positive cognitive emotional self-regulation and academic achievement. Additionally, students with emotional regulation skills could overcome social challenges and control behavior to facilitate improved academic achievement. The multi-grade cluster sampling used in the reviewed literature, is prone to higher sampling error. Therefore, a similar study was necessary using purposive sampling method which gives a more generalizable result, and in a different location.

In Africa, Amalu (2018) did a study on the correlation between academic achievement and emotional intelligence, (emotional intelligence facilitates control of emotions), with age, intrinsic and extrinsic motivation as the moderating variables in Nigeria. The study comprised 375 secondary school students from Benue State, within Markudi Metropolis. Participants' average age was 15 years and they were drawn from public and private schools. The emotional intelligence scale and achievement test in Mathematics were used to collect data. Data was analyzed using descriptive statistics and Multiple Regression. A positive correlation was revealed between emotional intelligence and academic achievement. Additionally, combined emotional intelligence components impacted significantly on academic performance as they aided in regulating and controlling emotions, a resource that enables academic achievement. The current

study set out to further those findings by examining the predictive value of different variables; emotional self-regulation and risk taking behavior on academic achievement given students in a different environmental location.

Although the sampled students were generally of the same age as those in the current study, the data collection instrument and analysis method were different. Emotional Intelligence (EI) scale and achievement test in Mathematics were used to measure students' emotional intelligence. In the current study, emotional self-regulation used the Emotional Regulation Questionnaire for Children and Adolescents (ERQ-CA) scale and achievement test in Mathematics. Academic achievement was inferred from students' end of term average score for eight subjects. Comparison in findings would be interesting considering the difference in data collection and analysis methods.

Local research studies that have notably examined the correlation between emotional self-regulation and academic achievement were not easily available. Therefore, the association was deduced using studies that examined factors that can be related to current variables. Such variables include anxiety which is a type of emotion. Mukholwe (2015), using a correlational survey and 354 (203 boys, 156 girls) form four students in Kakamega County, investigated some correlates of examination anxiety (a negative emotion) and students' academic performance in public secondary schools. Mukholwe found out that a majority of students experienced exam anxiety drawing conclusions that exam anxiety related

negatively and significantly to academic achievement/performance. Similar findings were reported by Syokwaa et al. (2014), who examined how anxiety levels affect academic achievement among form three students in Langata District using 180 students (90 boys, 90 girls) in a survey. The results indicated that academic achievement is likely to be influenced by high anxiety levels. The study investigations were based on only one negative emotion (anxiety). Thus, another study with more inclusivity in terms of more types of emotions both positive and negative, and with a larger sample to make results more generalizable was necessary.

In yet another study, Gicharu and Sindabi (2016) investigated academic achievement as influenced by adolescence developmental changes. They used 375 Form Three students with a mean age of 17 years from Nakuru public secondary schools, schools and 51 teacher counselors. Their findings revealed a significant negative relationship between students' emotional behaviors and achievement. The relationship between the specific developmental (emotional) changes and academic achievement was not reported. In addition, the relationship among emotional self-regulation strategies was not revealed. This relationship featured prominently in the present study.

Generally, earlier studies reviewed reported a positive link between emotional self-regulation and academic achievement. A noteworthy factor is that, majority of such studies were conducted in the first and second world countries hence

differences in terms of cultural milieu compared to the Kenyan environment. Further, at the local scene, there is a scarcity of studies on emotional self-regulation and academic achievement. Given the fact that, emotional self-regulation is important in academic achievement, the researcher found it worthy to conduct a related study in order to enhance the literature that is available.

### **2.3 Risk Taking Behavior as a Predictor of Academic Achievement**

Previous studies on students and adolescent behavior suggest that risk behaviors are associated with various outcomes. However, few have addressed association between risk taking behavior and educational outcomes (Blair, 2017). Using 210 high school students in Southeast Michigan, Scalucci (2018), investigated a combination of social and cognitive variables. The study used examination grades and self-report questionnaire as measuring tool. Findings reported a negative and significant correlation between risk taking behaviors and academic achievement. Although data collection tools in the two studies were similar, there is a notable difference in location. The current research will make way for comparability of results as well as the differences in culture.

In a correlational research study, Hill et al. (2012) investigated early adolescence adjustment and risk behavior. The study sample was 248 (117 males, 131 females) 7<sup>th</sup> grade students with an average age of 13 years, drawn from a Midwestern suburban middle school. The results revealed a high correlation between danger invulnerability and risk behavior while interpersonal invulnerability correlated with adjustment outcomes but negatively with

depressive symptoms. General invulnerability positively predicted wellbeing. However, the relationship between the specific domains of risk taking behavior and academic achievement, a major objective in the present study, was not investigated.

In Netherlands, a longitudinal study using a sample of 1,219 7<sup>th</sup> and 9<sup>th</sup> grade adolescents with a mean age of 14 years, Gremmen et al. (2018) studied adolescents' friendships, academic achievement and risk behaviours. The study's concern was to establish the extent to which risky behaviors during adolescence affect academic achievement. Results indicated that risk behaviors negatively affected academic achievement. The current study was necessary as it was conducted in a different geographical location which allowed for cross-cultural differences. In addition, the correlational method used, was likely to minimize time related threats because data from participants was collected just once.

A related research study by Sevic et al. (2019), investigated the relationship between use of sexually explicit materials (risk behavior) and academic outcomes. This longitudinal study was conducted with two cohorts made up of Croatian male adolescents aged 16 years on average. Path analysis was used to explore the target association following original study. A Structural Equation Model analysis failed to show any variation in the academic achievement of students for both cohorts. The conclusion therefore, was that the academic achievement of boys in mid adolescence has no relation with their exposure to pornographic material. The

current study examined risk taking behavior as a predictive factor of academic achievement. The sample was of a similar age group. Nonetheless, there was a difference in terms of participants' cultural background, and data analysis methods used. Therefore, this makes it possible to compare findings based on cultural differences and data analysis method.

Another study by Shukla and Monga (2016), aimed at exploring effects of risk taking behavior on academic achievement using 40 students aged between 15 and 17 years of age in South Delhi India. Results indicated that risk taking behaviors correlated negatively with academic achievement. Additionally 100% of the girls were categorized as moderate risk takers while 20% of the boys were high risk takers.

In a school based cross-sectional study, Birhanu et al. (2012), investigated the high prevalence of substance use, and associated factors. The sample was drawn from secondary school students in Ethiopia. Participants were selected from 9th and 12th grade level. The average age was 17 years. Of the 651 participants selected by stratified sampling, 55% were male while the rest were female. Results showed that among other factors, low perceived risk of harm in substance use, and low academic achievement were highly associated. Although, the study used a sample of students in their adolescence like in the current one, the methodology used and cultural setting of participants were different Therefore,

another study using a different method and in a Kenyan setting was necessary so as to allow for comparison.

In-depth interview method of data collection was used by Chireshe and Malahlela (2013) to explore educators' perception of the effects of teenage pregnancy (risk behavior) on the behavior of students in secondary schools within South Africa. The sample consisted of fourteen educators (7 males, 7 females) selected through purposive sampling. The results revealed that low academic achievement and teenage pregnancy are significantly related. However, there was a limitation in terms of the small sample size used which limited generalization of study findings. The current researcher used a self-report questionnaire, with a larger sample of participants drawn from secondary schools to create room for comparison and wider generalization.

In Kenya, Ngware et al. (2016) did a research about moderated effect of risk behavior on academic achievement. The sample consisted of adolescent girls aged 14 years on average, living in urban slums. The researchers conducted a quasi-experiment with duo treatment where one arm consisted of 538 girls and another of 272 girls for comparing. Results showed a strong mediation effect between academic achievement and risky behaviors. Participants in the present study were of similar age but the design used was different. Therefore, given that the study applied a different study method, comparison of results would make interesting

reading. In addition, it was possible to make comparisons in terms of age and the different environmental settings.

A majority of the reviewed studies were conducted in the West and Oriental states meaning that cultural environments and learning contrasted with those in Kenya. The findings generally pointed to the two variables; students' risk taking behavior and academic achievement being negatively related. Given that locally similar studies are few, if any, the current study was required for comparison reasons and to contribute to cross-cultural studies.

## **2.4 Sex Differences in Emotional Self-Regulation and Risk Taking Behavior**

### **2.4.1. Sex Differences in Emotional Self-Regulation**

In line with findings that psychological and demographic factors interact to predict academic achievement, the study investigated sex difference in emotional self-regulation and risk taking behavior. Available research findings are varied. While some have shown no significant difference in favor of either sex, others have revealed modest differences or none. (Mburu, 2013; Allison et al. 2014; Barmao et al. 2015; Otanga, 2016).

A related study, conducted in California by Aldao and Hoeksem (2011), investigated the differences of sex and age in the strategies of emotional self-regulation and their correlation. They used a sample of 272 females and 237 male adults of Caucasian, Hispani, African and American origin, averaging 50 years of

age. Findings revealed that defective strategies of emotional self-regulation predicted high depressive symptoms regardless of age and sex. The depressive symptoms are likely to relate negatively to academic achievement. The current research study was conducted in a different cultural location and with secondary school students. In addition, although the study investigated sex differences in emotional self-regulation, the relationship with academic achievement was not examined. This was an objective in the current study.

Related findings were reported in a research conducted using 112 students with 28 years mean age drawn from a Psychology class, in a mid-Western University, America (Goubet & Chrysikou, 2019). It explored emotional self-regulation flexibility and sex differences in context sensitivity and repertoire using a self-report questionnaire. According to the outcome, male and female students did not show significant differences as far as emotional self-regulation was concerned. The current study was deemed necessary in order to compare for multicultural disparities and comparabilities, if any.

In a study by Haron et al. (2010), 90 professors (68 males and 22 females) and 501 non-professors (208 males, 293 females) were used to investigate sex influence on emotional self-regulation among Malaysian academicians. The researchers used a mixed method approach. The findings revealed higher emotional self-regulation among female lecturers in comparison to their male counterparts. Levels of sex differences according to emotional self-regulation

strategies were not investigated. Further, there was a noted difference between the sample and data collection methods of the said study and the current one.

Locally Aloka et al. (2014) examined how anxiety levels predicted academic achievement among form three students in Langata Sub-county, Nairobi. A sample consisting 180 (90 boys, 90 girls) was used. A key concern in the study was to explore the significance in sex differences, in respect to personality and examinations anxiety scores. From the results, a correlation between anxiety (with girls exhibiting higher levels) and academic achievement was revealed. However, the study focused on only one sub-county within Nairobi County. Additionally, the relationship between academic achievement and other negative as well as positive emotions was not reported; which is the concern of the current study.

Local studies on emotional self-regulation differences by sex were not readily available. Those available investigated sex differences in related variables such as examination anxiety. Other types of emotions have received little attention if any.

#### **2.4.2 Sex Differences and Risk Taking Behavior**

Risk taking tendencies are generally associated with males while females are seen as risk averse. Using a self-report questionnaire, Bartolome et al. (2016) studied perception of risk and the actual behavior of taking risks in adolescence in relation to personality and sex as influencing variables. The sample consisted of 356 (204 females, 152 males) aged 17 years on average. The students were of mixed races including Whites, Asian-Indian, Asian-Oriental, Black/African-

Caribbean and other ethnic backgrounds, from United Kingdom. The sample was picked from seven high schools located in the West Midlands area. The findings revealed that when it comes to perception and taking of risks, males were more daring than females. Additionally, males were less concerned about negative outcomes and experienced less anxiety compared to their female counterparts. However, the results did not report the correlation among the three variables of the study. The current study singled out low academic achievement as a negative outcome of students' wrong perception of risky behaviors. The Adolescent Risk-Taking Questionnaire (ARQ) was used to measure risk perception and risk taking behavior. On the other hand, Adolescent Invulnerability Scale (AIS) was used in the present study. This gave room for comparison in regards to instruments used.

A cross-sectional study by Blair (2017) used a sample comprising high school seniors in America to determine the association between risk taking behavior and examination grades as well as how this association varied by sex. There were 1031 female participants and 848 male participants representing public and private schools. The findings showed how both male and female students' grades were negatively affected by their risk taking behaviors. However, among the two, female students were found to be affected more than their male counterparts. The strength of association was however stronger in favor of female students unlike in male students. The current study examined sex differences in risk taking behavior among students in mid adolescence. Additionally, it used a different

methodological design with students of a different cultural background. The study therefore allowed for comparison.

Another related study by Sychareun et al. (2013) investigated risk perception of sexually transmitted infections including AIDS plus sexual behaviors among adolescents in the Luangnamtha Province of China who were sexually active. The findings revealed that low perception of contracting sexually transmitted infections was significantly associated with male adolescents. The study, which was community based, used 483 (245 boys, 238 girls) drawn from 32 ethnic groups and aged between 14-19 years. Since these findings were based on adolescents outside school, a similar study using adolescents in school and from a different locality was necessary.

In their study, Cerkez and Hocaogly (2017) examined adolescents' risk behavior and its relationship with perfectionism among 301 (170 females, 131 males) high school students in Lefkosa North Cyprus. A survey design was used with students aged between 15 and 20 years. Part of the research findings was that risk taking behaviors in adolescents depends on sex. More specifically, male students had a higher likelihood of engaging in behaviors that are potentially risky compared to female students. A similar study was found necessary with students of a different culture, and academic achievement as the outcome variable.

In a study conducted in Bangladesh, Hasan and Uzzaman (2019) studied the effect of risk taking behavior on sex and educational level. They used a risk taking questionnaire, demographic and personal information to collect data from 800 high school students, 400 boys and 400 girls. The findings indicated a higher mean score in favor of male students compared to female students. The current study was necessary for cross cultural comparison.

Regionally, related findings were observed from research conducted by Biadiora et al. (2014), using a study sample from Ife- Ife in Nigeria. The researchers used a systematic sampling method where they investigated sex differences in risk related activities among Yoruba City residents. Some 334 residents aged above 20 years both men and women participated in the study. The results indicated that when walking in darkness, women displayed more fear than men by a factor of 3.61. Further, 26% of the women routinely carried something for self-defense compared to 17% of the men. The current study targeted a sample of adolescent students in secondary school and associated the risk taking behavior with academic achievement.

In yet another study, Mwamwenda (2014) investigated the perception of adolescents not feeling vulnerable as far as HIV/AIDS infection is concerned given their sex. In this context HIV/AIDS was considered a risk behavior. The sample consisted of adolescents at university from Kenya (102), 164 South Africans, and 100 Tanzanians, both male and female. The researcher used a

‘Yes’/‘No’ questionnaire touching on HIV/AIDS related factors. The question that focused on HIV/AIDS invulnerability read: “Do you think you stand a chance of getting AIDS?” The results were mixed. All participants claimed invulnerability except females in Tanzania who claimed vulnerability. This was despite the high level of knowledge about HIV/AIDS. The current study utilized adolescent students in secondary school who may not be as informed about HIV/AIDS as those at the university. Further, it sought to find out how their perception of the disease may influence their behavior and ultimately academic achievement.

In spite of the fact that previous research studies have been done touching on risk taking behavior among adolescents, few if any have associated it with academic achievement. Due to this, the literature reviewed was from studies with related variables. It was also evident that males are likely to take more risks than females and where necessary females took precautions.

## **2.5 Prediction of Academic Achievement from Emotional Self-regulation and Risk Taking Behavior**

Studies which have attempted to directly establish the prediction model of adolescent emotional self-regulation and risk taking on academic achievement are few, if any. Cetin (2015) conducted a study on the prediction of academic achievement from self-regulation, learning and academic motivation among undergraduates in the USA. To collect data, the academic motivation scale was

administered on 166 early childhood education undergraduates. Results revealed that there was no correlation between students' Grade Point Average (GPA), and the predictor variables. A study similar to this research was necessary in African context for comparison purposes.

In a recent study, Hafiz (2015) focused on emotional regulation and academic achievement. The participants were 127 university students in a psychology class, in Malaysia. The data was collected using the Emotional Regulation Questionnaire (ERQ) and the students' Cumulative Grade Point Average (CGPA). The results revealed differences in the way emotional self-regulation strategies contributed to students GPA. Cognitive reappraisal was found to be a significant predictor of students' Cumulative Grade Point Average while expressive suppression showed insignificant predictive value on CGPA. However, none of the strategies predicted academic achievement.

These findings were based on university students who by virtue of their age are expected to have developed skills of emotional self-regulation. Therefore, a study within a different environment and with students at a level below university for comparison of study findings was necessary. In the present study, the sample was drawn from among secondary school students, and a different data collection scale used for comparison purposes.

In Spain, Mestre et al. (2017) investigated the relationship between emotional regulation abilities and strategies, among high school students in the suburban area. A total of 164 adolescent participants with a mean age of 14 years, both male and female took part in the study. Results revealed that emotional self-regulation ability was a significant predictor of adolescents' general welfare. At the same time, cognitive strategies such as positive reappraisal predicted positive outcomes for students. Similar findings had been reported from studies conducted in developed countries where use of cognitive reappraisal, one emotional self-regulation strategy led to positive outcomes. Therefore, a similar study with academic achievement as the outcome variable, and in a different environment was necessary for comparison purposes.

In a study by Booth and Nolen (2009), sex differences in risk behavior within single sex and co-educational schools was conducted. Participants were drawn from the two categories of schools and put in groups according to sex. They were then exposed to risky behaviors to test their risk perceptions and risk taking tendencies. Results revealed that girls in single sex groups were more likely to take healthy risks that were predictive of high academic achievement than girls in mixed sex groups. However, the findings did not report the effect of students' risk taking behavior and other variables like emotional self-regulation on academic achievement. This was a key concern of the present study.

A longitudinal study by Ahmed et al. (2013) studied some psychological factors and their correlation with achievement in Mathematics. The sample consisted of 522 grade 7 students of the mean age of 13 years in Netherlands. The main objective was to find out the link between emotional changes and changes in students' Mathematical achievement. The study was conducted with a sample of high school students from two schools within middle class communities. The results revealed that achievement in Mathematics was influenced by positive emotional changes. However, these findings were based in a different country and in one subject only. Additionally, time related threats associated with longitudinal study methodology used, may have affected validity of results. The current study collected data once from the participants therefore minimizing such threats.

In their study, Bamidele and Zakaria (2015) examined the causes of poor performance in Mathematics among 300 Nigerian undergraduate students. One objective sought the actual causes of students' low academic achievement. They used a descriptive ex-post facto approach. Results reported that emotional problems, one of the study variables, positively predicted weakness in Mathematics achievement. However, though emotional problem was a variable in the said study, the specific emotional difficulties were not examined. Additionally, their predictive weight on academic achievement in all the subject areas was not investigated. Therefore, the current study sought to find out whether emotional self-regulation challenges, coupled with risk taking behavior may predict academic achievement.

In Lebanon, a study on risk perception, motives and behaviors among university students was conducted by (Salame et al., 2014). They used a non-random sample of students outside their classes. There were 3000 participants from both private and public universities who participated in a bivariate and multivariate analysis. The study findings revealed that female students demonstrated better perception of risks which resulted in wiser behavior indulgence than male students. The study however did not investigate how risk perception and risk taking behavior predicts academic achievement.

Locally, Mutweleli (2014) investigated academic motivation and self-regulated learning as predictors of academic achievement among public secondary schools in Nairobi City County, Kenya. Self-regulation is a component of emotional self-regulation. Both academic motivation and self-regulated learning revealed a positive and significant relationship with academic achievement. The study used a sample drawn from Form Three and not Form Two as in the current study. Form two students were preferred because developmentally, they are within adolescence age when emotions are likely to be at their peak. Emotional self-regulation is important at this point. Another study in the same locality, with a different class and study variables was therefore necessary.

Notably, studies reviewed in the current study did not conclusively ascertain the prediction model of emotional self-regulation and risk taking behavior on academic achievement. This was occasioned by scarcity of empirical research

studies on the two variables jointly predicting academic achievement. This particular limitation made it necessary to conduct a study that would help identify which one of the two variables best predict students' academic achievement.

## **2.6 Summary of Literature reviewed and Gap Identification**

The reviewed literature showed that indeed academic achievement could be predicted by emotional self-regulation and risk taking behavior. However, these studies were not clear on whether academic achievement was better predicted by emotional self-regulation or risk taking behavior. In some cases, students' risk taking behavior reported positive outcomes for adolescents. Hardly any study reported the combined effect of emotional self-regulation and risk taking behavior on academic achievement. Additionally, studies on emotional self-regulation and students' academic achievement, were mainly conducted with samples drawn from universities and elementary schools. Most of the studies on adolescent risk taking behaviors reported its relationship with academic achievement but with related variables such as risk perception, decision making, substance abuse, teenage pregnancy and sexual activities. Concerning sex differences in emotional self-regulation, risk taking behavior and academic achievement, the results were inconsistent.

A good number of the research studies reviewed were done in western countries within environments that are different compared to Kenyan environment. Some of them used different methodologies from the current one. It would therefore be

challenging to generalize such results to Kenyan students even where they target similar age group. This made it necessary to conduct further research to extend the existing findings and to understand which one between emotional self-regulation and risk taking behavior has more predictive weight on academic achievement.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

The chapter presented a discussion on the methodology employed in the research study; specifically, the design, variables, locale of the research, population target, sampling procedures, determination of sample size, pilot study and instruments. Lastly, data collection, logistical and ethical considerations as well as analysis of data were presented.

#### **3.2 Research Design**

The study adopted correlational research design. The design was deemed appropriate because it allows the researcher to make predictions based on the relationships and the degree of association among variables (Creswell, 2018). Correlation design also allows the researcher to analyze how variables either singly or in combination, affect the pattern of behavior (Gall, Borg & Gall, 1996) Consequently it was found suitable for this study whose major objective was to explore the predictive relationship among emotional self-regulation, risk taking behavior and academic achievement. Furthermore, correlational research is useful in trying to make predictions on behavior. The relationship among the predictor variables in the current study can only be examined for prediction purposes hence the research design.

### **3.3 Research Variables**

Emotional self-regulation and risk taking behavior were the predictor variables. Emotional self-regulation had two levels: cognitive reappraisal, and expressive suppression. Risk taking behavior had three levels namely: general invulnerability, danger invulnerability and interpersonal invulnerability. Both predictor variables were measured at interval level of measurement through scores from adapted scales. Sex was had two levels; male and female, measured at categorical level. The outcome variable was academic achievement and was measured at interval level. It was inferred from the class mean score obtained in eight subjects during first term, mid-term, and end of term one examination records for the year 2019. The outcome variable was measured at interval level. The standard Z- scores were obtained by converting the raw scores. They were then transformed into T-scores to allow for comparability across the sampled schools. For rating purposes 26-42, T-score values were deemed as low academic achievement; 43-58 were categorized as average, and lastly 59-75 were categorized as high academic achievement. Finally, the students' sex was measured at categorical level.

### **3.4 Location of the Study**

Nairobi City County, Kenya, was the location of study (See Appendix J). It is Africa's 14<sup>th</sup> largest city. The estimated population is 6.54 million people from diverse backgrounds. It is also the capital city of Kenya occupying approximately 696.1 square kilometers. This makes it the largest city in the country with 17

administrative sub-counties. Counties that border Nairobi are Kiambu, Kajiado and Machakos.

The population consists of people who are either employed or self-employed. The cosmopolitan nature means that there is a wider representation of all types of students from all over Kenya than any other county. Many of the secondary schools in Nairobi City County are either day or co-educational. The high number of day and co-educational schools has been necessitated by the huge population of students in the county and the need to make education more affordable and accessible. Students who attend public schools are mainly from low and middle class levels.

Nairobi City County was preferred as location of study due to its declining academic achievement. In the last few years, statistics from the Ministry of Education (MOE), indicate that the mean grade for Nairobi County has been below C+, which is the minimum grade for University admission. (See Appendix D). Additionally, examination results indicated that many of the schools had a mean score of D+, while the overall performance in the country has been below the national average mean score.

Nairobi City County has unique features that are not found in other counties. For instance, it is way ahead in terms of resources that are necessary in enhancing students' academic achievement. Such resources include infrastructure, human

resource and other important facilities. When compared to counties such as Turkana, Mandera and Samburu, the level of poverty in Nairobi is lowest (Kenya National Bureau of Statistics, 2018). Research studies conducted by various organizations have reported a connection between physical environment and academic achievement among the marginalized counties (National Gender and Equality Commission, 2016; UNICEF, 2018). There was need to find out the reasons behind low academic achievement in the county despite the enabling environment.

Research studies conducted in Nairobi City County associate this low academic achievement with factors such as students' self-esteem, academic mindsets and school psychological environment (Munanu, 2016; Mutua, 2018 Obara, 2019). This means that the problem has persisted despite the efforts made. The findings of this study may help in narrowing down the reason behind the persistent low academic achievement. It may also help reduce the long term effects of low academic achievement such as crime, insecurity and poverty.

### **3.5 Target Population**

The study targeted was all the form two classes in Nairobi City County from public secondary schools during the year 2019. Going by the statistics from the County Director's office (2019), there were approximately 31,420 Form Two students. The accessible population for the level was 9076 students (5457 boys,

3619 girls) from 8 public secondary schools (two boys' boarding, three girls' boarding schools, one boys' day and two co-educational day).

The choice of form two was informed by the fact that, in Kenya form two students are right in the middle of adolescence. During this period, they are expected to be experiencing heightened emotions and may be undergoing challenges in emotional self-regulation. At the same time, having just graduated from form one, the expectation is that they now feel less subdued and intimidated and may be experiencing more excitement and overconfidence. While in such a state, there is the risk of not applying emotional control leading to inattention in school work leading to low academic achievement. The findings from this study could inform on the appropriate emotional self-regulation strategy to apply as an intervening measure to help students achieve their academic goals.

### **3.6 Sampling Techniques and Sample Size Determination**

#### **3.6.1 Sampling Techniques**

The procedures used to select participants included; purposive sampling, stratified sampling plus simple random sampling. Through purposive sampling, Nairobi City County, schools and form two classes were selected. Purposive sampling allows for the researcher to obtain a sample with required characteristics according to study objectives (Kothari, 2013). Eight schools were further selected using stratified sampling. The researcher used a list of all public schools in Nairobi City to stratify schools into four strata; girls' boarding, boys' boarding,

co-educational day and boys' day. Simple random sampling was used to select two boys' boarding, two girls' boarding, three co-educational day schools, and one boys' day school.

A sample of 914 (553 boys and 361 girls) were drawn from the accessible population using simple random procedures. To obtain the required number of participants, the researcher first used lists for all form two students. A list of form two students in each school was obtained and targeted number of participants per school selected. This accounted for 10% of accessible population. A sample of between 10 and 20 percent is regarded as suitable when the population is fairly large (Gorard, 2015).

The whole sample comprised of 914 participants. A total of 324 participants were selected from the boys' boarding schools, that is, 162 participants from each school. In girls' boarding, 234 girls were selected accounting for 117 girls per school. In co-educational schools, 295 (168 boys and 127 girls) participants were selected. Finally 61 students in boys' day school participated in the study.

### 3.6.2 Sample Size Determination

The exact numbers are presented in Table 3.1

**Table 3.1**

*The Sample Composition*

Type of School	Population		Sample Size			
	School	Students	School	Students		
		B	G	B	G	
Boys' Boarding	13	3241	-	2	324	-
Girls' Boarding	11	-	2341	2	-	234
Co-educational Day	35	1683	1278	2	168	127
Boys Day	9	533		1	61	-
Sub Total		5457	3619		553	361
Total	68	9076	8		914	
Percentage	100	100	12		10	

*Note.* B= Boys G= Girls

**Source: Nairobi County Director's Office (2019, February)**

Table 3.1 shows how sample size for both schools and participants was approximated from the entire population at 12 % for schools and 10 % for participants. This is an adequate threshold of what Gorard, (2015) considers an appropriate sample from a normal distribution.

### 3.7 Research Instrument

The study used a self-administered questionnaire (See appendix B), and pro forma summary for students' examination results (See Appendix C). According to Kothari 2013, the questionnaire is a convenient tool of collecting data in survey studies because it is easy to administer particularly when large samples are involved. Kothari (2013) also opines that a well-designed questionnaire can yield dependable and reliable findings. The questionnaire used for this study contained

two adapted scales; adolescent emotional self-regulation scale and risk taking scale.

### **3.7.1 Questionnaire**

Section III consisted of an Adolescent Invulnerability Scale (AIS) which sought information on students' risk behavior. The scales were preferred because they had been used by other researchers with success. The summary of the instrument is presented next.

### **3.7.2 Emotional Regulation Questionnaire for Children and Adolescents**

#### **(ERQ-CA)**

The emotional self-regulation of participants was measured by use of the Emotional Regulation Questionnaire for Children and Adolescents scale 9 revised version) developed by Gross and John (2003) (See Appendix B). The researcher obtained and adapted the tool from open forum where it was made available by the developers. The authors were duly acknowledged. The scale has 10 items with two sub-scales: Cognitive Reappraisal and Expressive Suppression. The first subscale contains 6 items while the second one has 4 statements measured on a 5 point scale of rating of (1= *strongly disagree* to 5 = *strongly agree*). The sub-scale scores could range from 6-30 (Cognitive Reappraisal and 4-20 (Expressive Suppression) (see appendix B, section 11). If a subscale registers a high score, this indicates a high validation of emotional self-regulation ability on that particular subscale and vice versa. Using the results of the pilot study, those items that were in the original ERQ-CA and in the opinion of the researcher were unclear or

difficult for students were modified. For instance, the word “emotions” was changed to “feelings” while ‘express’ was changed to ‘show’.

### **3.7.3 Adolescent Invulnerability Scale**

Adolescent risk taking behavior was measured by use of Adolescent Invulnerability scale (AIS). The scale was developed by Lapsley & Duggan (2001) revised version. The developers of the tool availed it for general use by researchers with correct acknowledgement whenever used. The scale has 21 items divided into three subscales: general invulnerability with 9 items, danger invulnerability and interpersonal invulnerability with 6 items each. Each subscale comprised of items measured on a 5-point rating scale (1 = *strongly agree* to 5-*strongly disagree* (See appendix B, section 111). Lapsley and Duggan (2001) reported a good reliability for the three subscales measuring risk taking from .72 to .83.

### **3.7.4 Pro Forma Summary of Students’ Examination Results**

Academic achievement scores were obtained from academic records in the various schools and recorded in Academic Achievement Table (See Appendix C). Eight compulsory subjects were used to provide mid and end-of-term one examination results for 2019. The scores were categorized into low, average and high levels. Ratings of 18 to 39 were considered low, 40 to 59 were considered average while 60 to 76 were considered high. The decision to use students’ grades was informed by the fact that it is not only a powerful way of presenting data but

a cost effective one as well. Additionally, other researchers have used it in related studies with positive outcomes (Mutweleli, 2014; Ng'ang'a 2019; Otanga, 2016.

### **3.8 Pilot Study**

A random sample of 17 boys and 17 girls (34) in form two, from one co-educational school within Nairobi was used for piloting. This particular school was not included in the main research. The aim of the piloting was to ensure clarity of instructions as well as the instruments' content validity and reliability. It also helped to approximate the amount of time that the exercise would take.

In the course of piloting, the research instruments were administered in the same way as would happen while conducting the actual data collection. The students were requested to point out the difficulties they encountered pertaining to the questionnaire items. Due to this, some items that were in the original questionnaire were found confusing and reworded. Further consultations with experts in Educational Psychology Department, Kenyatta University assisted in ensuring the accuracy of the questionnaire items and content validity of the tool. The report received from the pilot study was included in the instrument as part of the actual study.

Two researchers, Gullone and Taffe (2011) had reported sufficient convergent validity of .86 when they used ERQ-CA with Australian adolescent students of similar age as in those in the current study. Data for the adapted emotional self-

regulation and risk taking behavior measure items yielded adequate estimates of internal consistency which are presented in the Table 3.2 and 3.3. The measure was considered suitable was hence adopted for this study.

During the pilot study, reliability of the questionnaires was determined. To achieve this, scores obtained were correlated to get reliability co-efficient. It fell within the range for reliability. Lapsley and Duggan (2001); Gullone and Taffe (2011) have suggested coefficients of more than 0.6 for AIS and ERQ-CA respectively as indicative of reliability. The coefficients for this study are presented in Table 3.2.

**Table 3.2**

*Cronbach's Alpha reliabilities for Emotional self-regulation questionnaire*

ESR Index	Reported Alphas Gross & John (2004)	Cronbach's Alpha (Pilot study)
Cognitive Appraisal	.79	.75
Expressive Suppression	.73	.72
Overall	.76	.74

To establish how reliable the risk taking measurement was during piloting, a comparison between the original study's reliability indices and those of the pilot study was done. Table 3.3 presents the results.

**Table 3.3**

*Cronbach's Alphas reliabilities for Risk Taking Questionnaire*

RT Index	Reported Alphas (Lapsley & Duggan 2001)	Cronbach Alpha (Pilot study)
General Invulnerability	.83	.67
Danger Invulnerability	.74	.57
Interpersonal Invulnerability	.72	.74
Overall	.76	.66

The Cronbach Alphas for ESR ranged between .72 and .75, while those of RT ranged between .57 and .74. The original internal consistency for emotional self-regulation by Gross and John, (2004) ranged from .73 to .79 and risk taking Lapsley and Duggan, (2001) ranged from .72 to 83. The differences noted in the reliability coefficient may be attributed to cultural differences in the different samples.

### **3.9 Logistical and Ethical Consideration**

#### **3.9.1 Logistical Considerations**

The researcher obtained authorization from Kenyatta University Graduate School. A research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). Clearance was then sought from education and administration officials in the county office. Afterwards, permission to collect data was requested from school principals.

### **3.9.2 Ethical Considerations**

The researcher sought consent from participants before collecting data (see Appendix A). Those who consented were the only ones who took part in the study. To students who did not give consent, it was explained that there would be no academic implication for none participation. To assure participants of confidentiality, only admission numbers were to be indicated, and even these, only to help in identifying the participants' scores from the academic records provided. The assurance that the data would not be used for any other reason other than for research was given.

### **3.10 Actual Data Collection**

The questionnaires were administered by the researcher at the convenience of participants as advised by the respective administrations in each school. Instructions on how to correctly fill the questionnaires were carefully given by the researcher after introducing herself. Form two class teachers were requested to assist in the exercise and to also avail records of students' examinations. This was to enable the researcher access each participant's scores for mid-term and end of term one examination.

### **3.11 Data Analysis**

Descriptive and inferential statistics were used to analyze data. The quantitative data were first obtained then coded for statistical analysis using the Statistical

Package for Sciences (SPSS), version 21. Data analysis was guided by the following null hypothesis

H<sub>01</sub>: Emotional self-regulation does not significantly predict academic achievement: Statistical test: Pearson's Product Moment Correlation Coefficient.

H<sub>02</sub>: Risk taking behavior does not significantly predict academic achievement. Statistical test: Pearson's Product Moment Correlation Coefficient.

H<sub>03</sub>: There are no significant sex differences in emotional self-regulation and risk taking behavior. Statistical test: T-test for independent samples.

H<sub>04</sub>: There is no significant prediction equation of academic achievement from emotional self-regulation and risk taking. Statistical test: Multiple regression analysis.

**CHAPTER FOUR**  
**PRESENTATION OF FINDINGS, INTERPRETATION AND**  
**DISCUSSION**

**4.1 Introduction**

The chapter presented the study findings, interpretations and discussions according to the research objectives plus hypotheses. After introduction, the participants' demographic characteristics are presented, then return rate of research instruments. The results are then presented using descriptive and inferential statistics for each objective. Finally, interpretations and discussions followed by exploratory analysis are presented.

**4.2 General and Demographic Information**

The segment presents a general summary of the research instruments' return rate in regards to the target population. It also discusses participants' demographic data.

**4.2.1 Return Rate of the Research Instruments**

The total number of questionnaires provided to participants' was 914. Of these, 748 were collected translating to an 82% return rate. Among the questionnaires returned, 10 of them, accounting for 1.3% were rejected due to the participants marking one answer for all the questions or leaving more than five questions unanswered. Others failed to indicate their gender which explains variation in total number of participants. Therefore the exact number of questionnaires

included in the analysis was 738 translating to 82% participants. This means that 56.5% were males, 43.2% females and 0.3% did not respond ('no response').

Tabulation of actual sample size used in the study is shown in Table 4.1.

**Table 4.1**

*Participants' Return Rate*

TOS	Target Return rate			Actual Return Rate		
	B	G	Total	B	G	Total
BB	324	-	324	251	-	251
GB	-	234	234	-	217	217
COED	168	127	295	105	102	207
BD	61	-	61	61	-	61
NR						2
Total	553	361	914	417(57)	319(43)	738 (100)

*Note:* TOS= Type of School; BB=Boys Boarding; GB=Girls Boarding; COED=Co-educational Day; BD= Boys' Boarding; NR=No Response; B = Boys; G = Girls

**4.2.2 Demographic Data of Participants**

The tabulated data shows the demographic distribution of participants' sex. The findings are indicated in Table 4.2.

**Table 4.2***Distribution of Participants by sex*

Sex	Frequency	Percent
Male	417	56.5
Females	319	43.2
No response	2	0.3
Total	738	100.0

*Note.* N = 738

As presented in Table 4.2, a larger portion of participants (56.5% were males, while 43.2% were females while 0.3% did not respond. A possible reason for the sex variation could be attributed to irregular spread of male and female students in the sampled schools. Participants' age was then tabulated as shown in Table 4.3.

**Table 4.3***Distribution of Participants by Age*

Category	Frequency	Percent
13-15	187	25.3
16-18	511	69.3
19-23	12	0.9
NR	28	3.8
Total	738	100.0

*Note.* N = 738

As noted in Table 4.3, participants' age ranged between 13 and 23 years old despite being in the same class. A majority of students 69.3% were aged between 16 and 18, which is generally within the recommended age for this class. Those between 13 and 15 were 25.3% while the rest of the participants, aged between 19 and 23, made the remaining 0.9% which may be considered overage for form two.

### 4.3 Emotional Self-regulation as a predictor of Academic Achievement

The first objective was intended to explore the relationship between emotional self-regulation and academic achievement. The following sub-section presents the descriptive statistics followed by the particular inferential statistical analysis for testing hypothesis.

#### 4.3.1 Descriptive Analysis of participants' Emotional Self-regulation and Academic Achievement

The total scores attained by the participants' in the overall emotional self-regulation scale were used to determine the participants' levels of emotional self-regulation and to compute their means and standard deviation. Since the total number of items on the scale was 10, the minimum possible score for an individual in the scale was 10(1x10) and the maximum possible score was 50 (10x5). The scores were then categorized into 3 levels where scores ranging from 10 to 25 represented low emotional self-regulation. Scores ranging from 26 to 35 represented moderate emotional self-regulation and scores ranging from 36 to 50 represented high emotional self-regulation. Table 4.4 presents the results.

**Table 4.4**

*Participants' Levels of Emotional Self-Regulation*

ESR	Frequency	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
Low ESR	55 (7.5)	33.59	5.74	-0.722	1.47
Moderate ESR	402 (54.5)				
High ESR	281 (38.1)				

*Note.* *M* = Mean; *SD*=Standard Deviations; *Sk* = Skewness; *Kur*=Kurtosis; *ESR*= Emotional Self - Regulation

Results in Table 4.4 revealed that less than a quarter of the participants were rated as having low level of emotional self-regulation. More than half had moderate levels of emotional self-regulation. Those participants categorized as being high in emotional self-regulation were less than half of the total number. The mean score was 33.59 ( $SD = 5.74$ ) indicating that on average, the participants had a moderate level of emotional self-regulation. This could be due to the fact that about half of the participants were aged over 17 years and may therefore have developed higher levels of emotional control. Coefficient of skewness was - 0.72, pointing to the fact that the scores were negatively skewed. This suggests that participants who rated themselves highly on emotional self-regulation were more. The kurtosis value was 1.47 implying that the emotional self-regulation score were normally distributed.

The emotional self-regulation variable had two subscales; cognitive reappraisal and expressive suppression. Participants' scores on emotional self-regulation were subjected to further analysis to calculate the descriptive statistics for each individual subscale. The lowest possible score for cognitive reappraisal was 6(1x6) and the highest possible score of 30(6x5). The minimum possible score for expressive suppression was 4(1x4) and the highest possible score of 20(4x5). The results are shown in Table 4.5.

**Table 4.5**

*Descriptive statistics for Emotional Self-regulation subscales*

Subscale	N	Range	Min	Max	M	SD	Sk	Kur
CR	738	24	6	30	21.38	4.11	-0.78	.031
ES	738	16	4	20	12.21	3.79	-0.23	.493

*Note.* N 738 CR= Cognitive Reappraisal; ES= Expressive Suppression; *Min* = Minimum; *Max* = Maximum *M* = Mean; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

As Table 4.5 shows, the range for CR and ES was 24 and 16 respectively while maximum and minimum scores stood at 6 and 4. The mean score for cognitive reappraisal was 21.38 (*SD* = 4.11) indicating that on average, the participants had a moderate level of cognitive reappraisal. The mean score for expressive suppression was 12.21 (*SD* = 3.79) indicating that on average, the participants had a moderate level of expressive suppression. Participants' scores in cognitive reappraisal were negatively skewed (-0.78). Expressive suppression subscale scores were also negatively skewed (-0.23) suggesting that the participants rated themselves highly on both subscales. The kurtosis scores were below 2, an indication of normal distribution of scores.

#### **4.3.2 Descriptive Analysis of participants' Academic Achievement Scores**

The participants' examination results at end of term one, were transformed first into Z-score then into T-score. Scores for participants' academic achievement are shown in Table 4.6 following the descriptive analysis.

**Table 4.6***Descriptive Analysis of Participants' Academic Achievement*

N	Range	Min	Max	M	SD	Sk	Kur
738	49	26	75	52.36	9.69	-.41	-.26

*Note.* N=738 *Min* = Minimum; *Max* = Maximum; *M* = Mean; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis

As observed in Table 4.6, the range was 49, meaning that the lowest academic achievement score was 26, while the highest was 75. The mean score was (52.36 *SD* 9.69), indicating that on average, the participants had a moderate level of achievement. The results suggested a skewed and negative score indicating a high performance in majority of students probably due to the participants' level of emotional self-regulation where majority had moderate rating. The academic achievement scores were of a normal distribution as implied by (-.41) kurtosis score. Initially, scores had first been converted to T-scores ( $M = 50$ ,  $SD = 10$ ) which were then used to place participants' in categories. The categories ranged from low, average through to high. Low achievement category fell between 26-42, average 43-59 and high at 60-75 range. Additional analysis was performed to determine the participants' distribution across categories. Table 4.7 presented the results.

**Table 4.7**

*Participants' Levels of Academic Achievement*

Academic Achievement	Range	Frequency	%
Low	26- 42	128	17.3
Average	43- 59	421	57.0
High	60 -75	189	25.6
Total	-	738	100.0

*Note.* N = 738

Table 4.7 reveals that over half of participants were in the average level category of academic achievement. Approximately, a quarter of participants were in the high academic achievement category, while less than a quarter were in the low academic achievement category. This implies that a greater number of participants were in the average category of academic achievement.

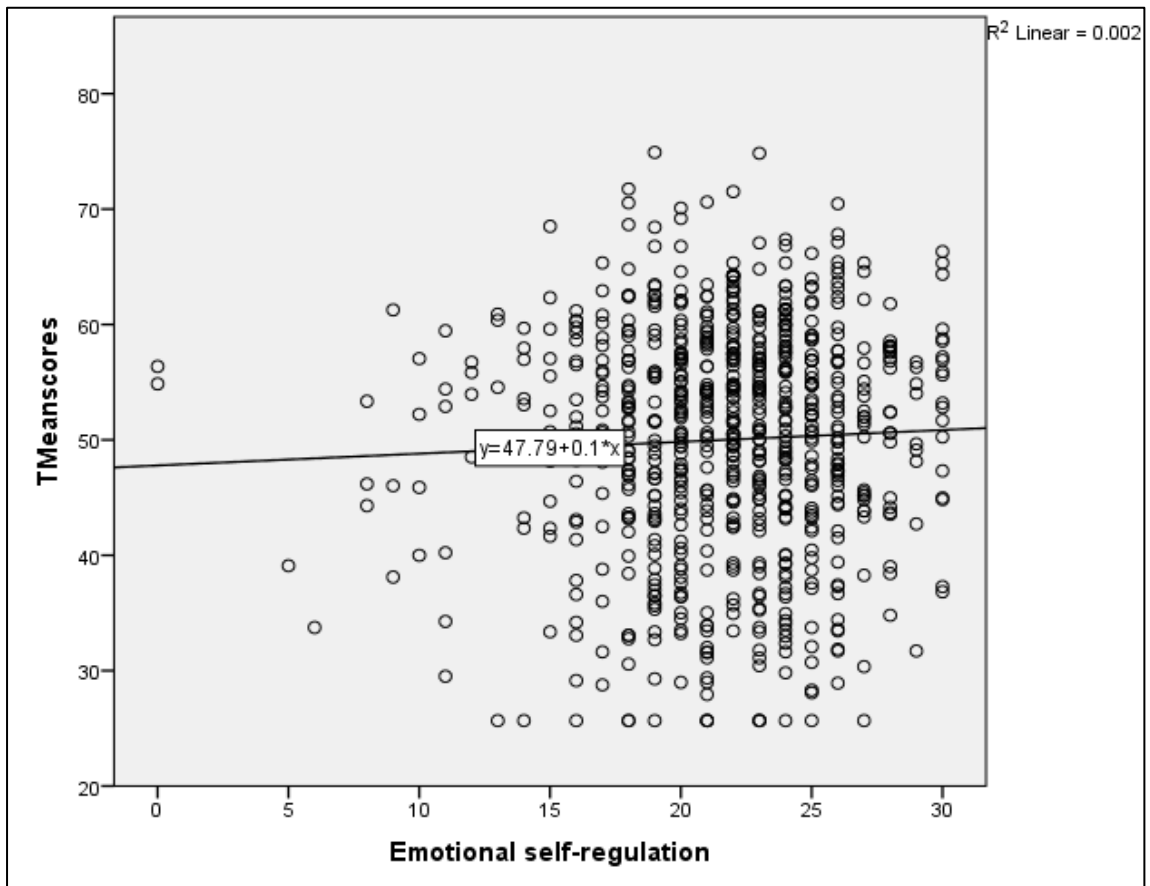
**4.3.3. Hypothesis Testing**

The following null hypothesis was tested to determine the correlation between emotional self-regulation and academic achievement

H<sub>01</sub>: Students' emotional self- regulation does not significantly predict academic achievement.

Pearson Product Moment Correlation Coefficient was used to conduct a bivariate analysis of correlation to test this hypothesis. The choice of Pearson's correlation was informed by the two important assumptions: that, the variables have almost a normal distribution as observed from the linear relationship in as far as the two

variables are concerned. Additionally, the two variables are determined in the ratio or interval levels. A scatter plot showing the correlation between emotional self-regulation and academic achievement was plotted after which the Pearson Product Correlation Coefficient could be done. This was in order to assess whether the two variables were linearly correlated. Figure 4.2 shows the results.



*Figure 4.2:* Scatter Plot on the Relationship between Emotional Self-Regulation and Academic Achievement

The Scatter Plot in Figure 4.2 shows that there was a linear correlation between emotional self-regulation and academic achievement as indicated by a visual

inspection of the scatter plot. A Pearson Product Moment Correlation Coefficient ( $r$ ) was run to test the strength of the relation. Table 4.8 presents the results.

**Table 4.8**

*Correlation between Emotional Self-Regulation and Academic Achievement*

		Mean score
Emotional self-regulation	Pearson Correlation	.10**
	Sig. (2-tailed)	.01
	N	738

*Note.* N = 738

\*\* . Correlation is significant at  $p < .01$  level (2-tailed)

Table 4.8 showed a positive relationship between emotional self-regulation and academic achievement,  $r(738) = .10, p < 0.05$ ; a correlation that was statistically significant. Based on these findings, the null hypothesis was thus rejected. The implication here is that, as emotional self-regulation improved, a commensurate improvement in academic achievement was observed.

The following two levels of ESR were used to formulate supplementary null hypotheses in order to further test the hypothesis:

H<sub>01.1</sub>: Cognitive reappraisal did not significantly predict academic achievement.

H<sub>01.2</sub>: Expressive suppression did not significantly predict academic achievement.

To test these hypotheses, Product Moment Correlation Coefficient was used to conduct a bivariate correlation analysis. Table 4.9 shows the findings.

**Table 4.9**

*Correlation between Subscales of Emotional Self-Regulation and Academic Achievement*

		CR	ES
Academic	Pearson Correlation	.07*	.07
Achievement	Sig. (2-tailed)	.05	.05
	N	738	738

*Note.*  $N= 738$ ; *CR* = Cognitive reappraisal; *ES* = Expressive Suppression

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

Table 4.9 reveals a positive and statistically significant correlation between cognitive reappraisal and academic achievement,  $r(738) = .07, p < 0.05$ . Based on the finding, the first supplementary null hypothesis was rejected. The conclusion therefore was that, cognitive reappraisal was significantly correlated with academic achievement. Hence, the conclusion that cognitive reappraisal occasioned high academic achievement. Contrastingly, a strong but insignificant positive correlation between expressive suppression and academic achievement,  $r(738) = .07, p > 0.05$ , was observed. Due to this result, the second null supplementary hypothesis was thus retained. The researcher's conclusion therefore was that, expressive suppression was not significantly related to academic achievement. This implied that different levels of emotional self-regulation related differently with academic achievement.

#### **4.3.4 Discussion of the Results**

Objective one of the study was to determine the extent to which emotional self-regulation predicted academic achievement. From the findings, a positive relationship was found between emotional self-regulation and academic

achievement as shown in Table 4.9. Further analysis was conducted to establish how significantly specific subscales of emotional self-regulation correlated with academic achievement. A positive statistically significant correlation was found between the first subscale of emotional self-regulation (cognitive reappraisal) and academic achievement. Contrastingly, positive relationship that was statistically non-significant was found between the second subscale (expressive suppression) and academic achievement. An important implication may be that even in adolescence, some students are able to regulate their emotions quite competently more so, when they employ suitable emotional regulation strategies.

Although the subscales had a correlation with academic achievement, cognitive reappraisal showed a stronger prediction on academic achievement than expressive suppression. This may be due to the fact that a student who applies cognitive reappraisal strategy that allows some rethinking to modify meaning hence changing emotional impact, perform better. The contrary may hold true for participants who apply expressive suppression where one inhibits expression of emotions which in turn interfere with thought processing and eventually affects learning negatively.

The result of the study on the association between emotional self-regulation and academic achievement validates the emotional intelligence theory by Goleman (2001), one of the theories that the current study was anchored on. Emotional intelligence theory posits that, when an individual applies emotional intelligence,

they are able to regulate their emotions. Effective control of emotions, facilitate better concentration in school work leading to positive outcomes including high academic achievement.

The results in the current study were in tandem with those by Amalu (2018) in a study of secondary school students from Oyo and Benue States, Nigeria. The study investigated the relationship between emotional intelligence which regulates emotions and academic achievement with age, intrinsic and extrinsic motivation as moderating variables. The findings indicated that emotional intelligence and academic achievement are positively related. Similar results were reported in a study by Bahrami (2017) among university students. A positive and significant relationship was found between cognitive emotional regulation and academic achievement. The results corroborate earlier findings by Al-Badareen (2016) which stated that emotional self-regulation strategies influence academic achievement.

The results of the current study were inconsistent with those reported by Hafiz (2015), where research findings revealed no significant relationship between emotional self-regulation and academic achievement. Additionally, a regression model revealed that the combined cognitive reappraisal and expressive suppression strategies revealed no predictive weight on academic achievement.

In conclusion these results imply that, students who use emotional self-regulation are able to control their emotions and concentrate better on learning; consequently, they end up performing well academically. Further, those who apply cognitive reappraisal strategy are able to assess a situation and change its emotional impact and hence make good decisions. On the other hand, students who apply expressive suppression are never aware of their feelings. This makes them resist asking and receiving help unlike those applying cognitive reappraisal. This behavior affects their coping abilities leading to poor choices even in learning situations. There are those who rely more on reappraising situations in order to control their emotions and those who express their issues such as seeking assistance especially in a learning environment. Therefore, there is need to apply the correct emotional self-regulation strategy in order to manage emotions competently.

As noted from the research, majority of the participants were generally within the recommended age at this level though a small percentage could be considered overage because they were aged between 19 and 23. This may be due to a number of aspects. They may have started schooling late probably due to lack of school fees and only got a chance after year 2003 when the government introduced Free Primary Education (FPE) in Kenya. This policy required all children regardless of age to go to school. Those who had dropped out were expected to resume at the level where they left. This may explain why some students in form two were older

than the expected age; a factor that could have implications on the variables investigated.

Those younger than 15, may have enrolled in standard one before age 6 owing to factors such as unavailability of child minders at home especially for mothers who work outside home. Peer pressure from other parents and need for socialization especially in single child households may have also led to early enrollment in school. For students above 16 years of age, factors may include having started schooling while already overage due to lack of school fees, especially before introduction of free primary and secondary education. It may also be due to conflicts within the family or parental ignorance on the importance of educating children. Class retention, before it was outlawed, may have forced some students to stagnate in one level for years before proceeding to the next level. Female students may have been victims of early pregnancies, forcing them to drop out of school for some time and resume later while older.

#### **4.4 Risk Taking Behavior as a predictor of Academic Achievement**

The second objective sought to establish the relationship between students' risk taking behavior and academic achievement. A descriptive analysis of the relationship between risk taking behavior and academic achievement was presented first, followed by the respective inferential statistics.

#### 4.4.1 Descriptive Analysis of Participants' Risk Taking Behavior

The total scores attained by the participants in the overall risk taking scale, were used to determine the participants' level of the risk taking behavior and to compute means and standard deviation. Since the total number of items on the scale was 21, the minimum possible score for an individual in the scale was 21(1x21) and the maximum possible score was 105 (21x 5). The scores were then categorized into 3 levels where scores ranging from 21 to 52 represented low risk taking, scores ranging from 53 to 73 represented moderate level of risk taking and scores ranging from 74 to 105 represented high level of risk taking behavior. The mean score obtained from form two mid and end term one examination 2019, were used to represent academic achievement levels. Summary of the findings on participants' level of risk taking behavior are presented in table 4.10.

**Table 4.10**

*Participants' Levels of Risk Taking Behavior*

Levels of RT	Frequency	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
Low level of RT	321 (43.5)	54.33	10.83	-0.06	0.50
Moderate level of RT	390 (52.8)				
High level of RT	29 (3.7)				
Total	738 (100)				

*Note.* *N*=738; *M* = Mean; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis; *RT* = Risk Taking

Table 4.10 revealed that a majority, over half of the participants had a moderate level of risk taking score. Slightly less than a half of the participants had a low level of risk taking behavior score while less than a quarter were in the high level of risk taking behavior category. The mean score was 54.33 (*SD* =10.83)

indicating that on average, the participants had a moderate level of risk taking behavior. Coefficient of skewness was -0.06 and this implied that most of the participants rated themselves positively on risk taking behavior, while the value of the kurtosis was 0.50 suggesting that the risk taking scores were normally distributed. Participants' scores on risk taking behavior were subjected to further analysis to calculate the descriptive statistics for each subscale.

The risk taking behavior variable had three subscales; general invulnerability, danger invulnerability and interpersonal invulnerability. A descriptive analysis of the general invulnerability subscale of risk taking is given. The total score attained by the participants in the general invulnerability subscale were used to determine the participants' levels of general invulnerability and to calculate the means and standard deviation. Findings are summarized and presented in Table 4.11.

**Table 4.11**

*Participants Levels of General Invulnerability*

Levels of GI	Frequency (%)	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
Low	454 (61.5)	20.97	6.03	.44	0.09
Moderate	246 (33.3)				
High	38 (5.1)				
Total	738 (100.0)				

*Note.* *N*=738; *M* = Mean; *SD* = Standard; *SD* = Deviation; *Sk* = Skewness; *Kur* = Kurtosis; *GI* = General Invulnerability

Table 4.11, revealed that over half of the participants had a low level of general invulnerability, less than half had a moderate level while only less than a quarter

of the sample had a high level of general vulnerability. The mean score was 20.97 ( $SD= 6.03$ ) indicating that on average, participants had a low level of general invulnerability. Coefficient of Skewness was positive suggesting that majority of the participants had a low rating of themselves in general invulnerability subscale. The kurtosis value was about 0.09 indicating that general invulnerability scores were normally distributed.

#### 4.4.2 Descriptive Analysis of Participants Danger Invulnerability Subscale

The sum total of scores that were obtained by the participants in the danger invulnerability subscale was used to determine their levels of danger invulnerability and to calculate their means and standard deviation. Findings are summarized and presented in Table 4.12.

**Table 4.12**

*Participants Level of danger Invulnerability*

Levels of DI	Frequency (%)	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
Low	216(29.2)	16.31	3.996	.031	0.18
Moderate	452(61.2)				
High	71 (9.6)				
Total	738 (100%)				

*Note.* *M* = Mean; *SD* = Standard Deviation; *Sk* = Skewness; *Kur* = Kurtosis; *DI* = Danger Invulnerability; ( %) = Percentage

Table 4.12 revealed that over half of the participants had a moderate level of danger invulnerability, and that less than a quarter had either low or high levels of danger invulnerability. The mean score was 16.31 ( $SD = 99$ ) indicating that on average, the participants had a moderate level of danger invulnerability. The

coefficient of skewness was positive indicating that most participants assigned themselves a low assessment on danger invulnerability scale. The value of the kurtosis was 0.18 implying that the scores of the danger invulnerability scale were normally distributed.

#### 4.4.3 Descriptive Analysis of Participants Interpersonal Invulnerability

##### Subscale

The sum total of scores that were obtained by participants in the interpersonal invulnerability subscale was used to determine their level of interpersonal invulnerability and to calculate the means and standard deviation. Summarized findings are presented in Table 4.13.

**Table 4.13**

*Participants Levels of Interpersonal Invulnerability*

Levels of II	Frequency ( % )	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
Low	171 (23.1)	17.06	4.37	-.63	0.18
Moderate	446 (60.5)				
High	121 (16.4)				
Total	738 (100%)				

*Note.* *M* = Mean; *SD* = Standard; Deviation; *Sk* = Skewness ; *Kur* = Kurtosis; *II* = Interpersonal Invulnerability; ( % ) = Percentage

Table 4.13 revealed that a majority of the participants had moderate levels of interpersonal invulnerability, less than a quarter had a low level and even fewer had a high level of interpersonal invulnerability. The mean score was 17.06 (*SD*= 4.37) indicating that on average, the participants' had a moderate level of interpersonal invulnerability. Coefficient of skewness was negative implying that

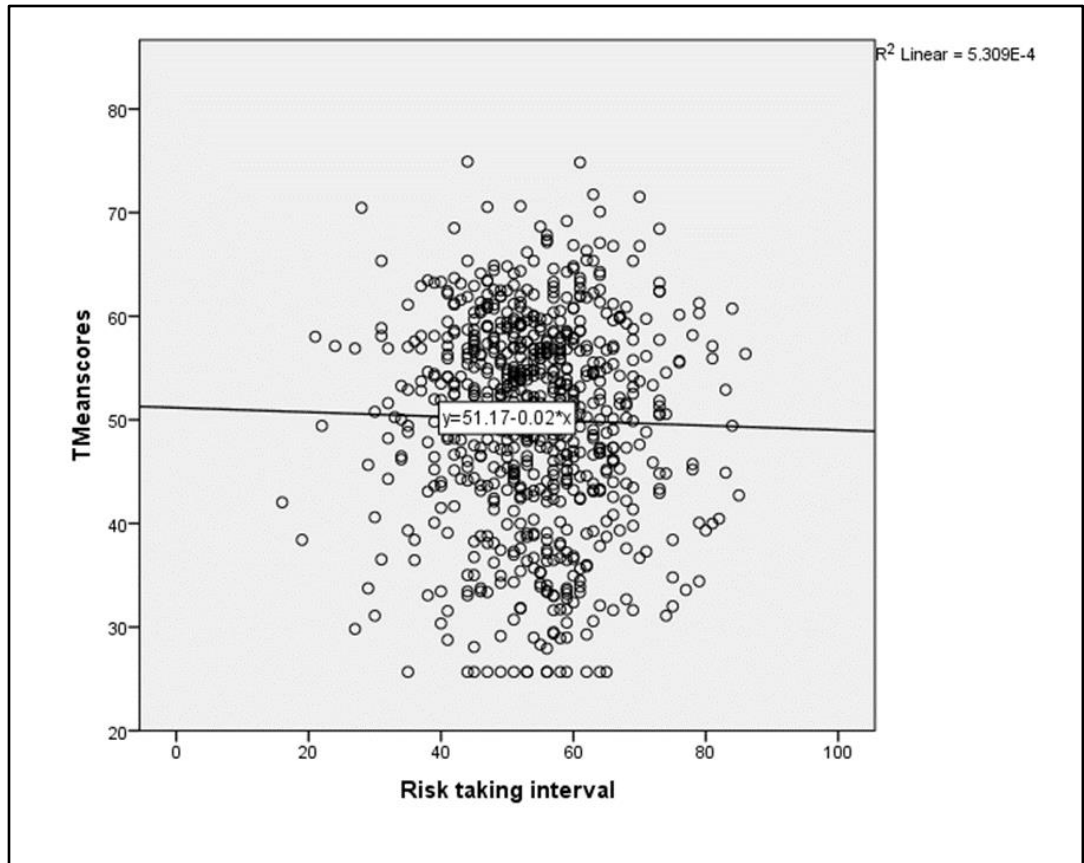
most participants gave themselves a high rating on interpersonal invulnerability. The value of kurtosis was 0.18 which indicated that the interpersonal invulnerability were of a normal distribution.

#### **4.4.4 Hypothesis Testing**

The following null hypothesis was tested in order to determine the relationship between risk taking behavior and academic achievement:

H<sub>01</sub>: Students' risk taking behavior does not significantly predict academic achievement.

The Pearson Product Moment Correlation Coefficient (r) was used to conduct a bivariate correlation analysis so as to test the hypothesis. The risk taking behavior and academic achievement variables met two important assumptions: they are measured either in the interval or ratio scale (continuous). Additionally, they are approximately normally distributed according to the linear correlation between both variables. To determine if there was a linear correlation between the two variables, a scatter plot of the relationship between risk taking and academic achievement was done prior to running the Pearson Product Moment Correlation Coefficient (r). Figure 4.3 shows the findings.



*Figure 4.3:* Scatter plot on the relationship between Risk Taking and Academic Achievement.

The scatter plot in Figure 4.3 shows evidence of a linear relationship between risk taking and academic achievement based on visual inspection of the scatter plot. Based on the findings, the researcher decided to run a Pearson Product Moment Coefficient ( $r$ ) to test significance of the correlation. The results of the Pearson Product Moment Coefficient between risk taking behavior and academic achievement are shown in table 4.14.

**Table 4.14**

*Correlation between Risk Taking behavior and Academic Achievement*

---

Risk taking	Pearson Correlation	Mean score
	Sig. (2-tailed)	-.03
	N	.40

---

*Note.* N = 738

Results in Table 4.14 indicate that there was a negative relationship between risk taking behavior and academic achievement,  $r(738) = -.03, p > 0.05$ , a relationship that was not statistically significant. Based on these findings, the null hypothesis was thus retained. A further analysis was conducted on individual subscales of risk taking behavior to determine if they related significantly to academic achievement. To achieve this, three supplementary null hypotheses were stated:

H<sub>0.1</sub>: General invulnerability does not significantly predict academic achievement.

H<sub>0.2</sub>: Danger invulnerability does not significantly predict academic achievement.

H<sub>0.3</sub>: Interpersonal invulnerability does not significantly predict academic achievement.

The Pearson Product Moment Correlation Coefficient was used to conduct a bivariate correlation analysis to test the supplementary hypotheses. Table 4.15 presents the findings.

**Table 4.15***Correlations between Subscales of Risk Taking and Academic Achievement*

		General Invulnerability	Danger Invulnerability	Interpersonal Invulnerability
Mean score	Pearson	.01	-.04	-.04
	Correlation			
	Sig. (2- tailed)	.83	.24	.24
	N	738	738	738

Note.  $N=738$ 

As shown in Table 4.15, among the three subscales of risk taking behavior, only general invulnerability was positively related to academic achievement, a relationship that was statistically non-significant  $r(738) = .01, p > 0.05$ . Similarly, the relationship between danger invulnerability and academic achievement was found to be negative and statistically insignificant at  $r(738) = -.04, p > 0.05$ . Interpersonal invulnerability had also a negative relationship with academic achievement which was statistically insignificant  $r(738) = -.04, p > 0.05$ . The supplementary null hypotheses were therefore retained.

#### 4.4.5 Discussion of the Results

Objective two was to establish how students' risk taking behavior related to academic achievement. The results indicated a non-significant correlation between students' risk taking behavior and academic achievement. Correspondingly, none of the domains of risk taking behavior correlated significantly with academic achievement.

The study results were consistent with those reported by Sevic et al. (2019) among Belgian boys that, students' behavior of watching pornography (risk behavior) had no relationship with their academic achievement. This was a longitudinal study conducted with two cohorts involving male adolescents aged 16 years on average.

The findings were inconsistent with those of a study by Gremmen et al. (2018) who investigated adolescents' friendships, academic achievement and risk behaviors among 14 year old adolescents in Netherland. The longitudinal study reported a negative relationship between risk behaviors and academic achievement. Similar results were reported by Scalcucci (2018) using high school students from South Michigan. Risk taking behavior was found to be negatively correlated to academic achievement.

The findings were found to be contrary to those by Shukla and Monga (2016) among students in adolescence. Risk taking behaviors were negatively correlated to academic achievement. Similar results were reported by Birhanu et al. (2012) among high school students in Ethiopia. The results indicated that low perceived risk of harm in substance use (risky behavior) and low academic achievement were highly correlated.

The study findings also contradicted those by Hill et al. (2012), who found the risk taking subscales (danger, general and interpersonal invulnerability) highly related to positive outcomes. Chireshe and Malahlela (2013) explored educator's

perception of the effects of teenage pregnancy, considered a risk behavior of learners in South African secondary schools. The study, revealed a significant negative relationship between teenage pregnancy (considered a risk behavior), and academic achievement. Similarly, a negative relationship between behavior that was considered risky and academic performance/ achievement was reported by Ngware et al. (2016). The study consisted of girls in their adolescence living in Nairobi urban slums. The results reported a strong mediation effect between risk behaviors and academic achievement.

In conclusion, the fact that students' risk taking behavior and its three domains did not significantly predict academic achievement, may imply that other factors not investigated in the current study could be responsible for the low academic achievement of students. The other implication could be that, even those who do engage in risky behaviors, such behaviors do not affect their learning in a significant way. Another implication could be that adolescence in this age and era is not necessarily a stressful time as was previously thought. This could be because of change in cultural patterns which could be facilitating adolescents' emotions better than before. Finally, the results indicate that students in their adolescence do actually feel vulnerable when faced by the threatening situations.

Finally, it was interesting to note that the findings are contrary to Elkind's Adolescent Egocentrism Theory (1967) that guided this study. The theory postulated that, adolescents generally experience a sense of false immunity to any

form of danger. In fact, the study results indicate that most of them are aware of their vulnerability to psychological, physical and social threats. According to the results, only a small minority indicated feeling immune to various forms of danger.

#### **4.5 Sex Differences in Emotional Self-regulation and Risk Taking behavior**

The third objective was to explore if there were sex differences given emotional self-regulation and risk taking behavior. Descriptive statistics of sex differences in both variables are presented first, followed by appropriate inferential statistics.

##### **4.5.1 Description of sex differences in Emotional Self-regulation**

In order to establish whether the sex differences in students' emotional self-regulation were significant or not, analysis of scores was done to determine their mean and standard deviation. Table 4.16 presents the results.

**Table 4.16**

*Description of Emotional Self- Regulation scores by Sex*

	<i>Sex</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
ESR	Male	417	33.96	5.67	.28
	Female	319	33.08	6.82	.33

*Note.* ESR= Emotional Self- regulation; *M* = Mean; *SD* = Standard Deviation

*SE* = Standard Error

The results in Table 4.16 indicated that male participants had a higher emotional self-regulation mean score ( $M = 33.96$ ,  $SD = 5.67$ ) than female participants ( $M = 33.08$ ,  $SD = 6.82$ ). This inferred that male participants' rating of themselves concerning emotional self-regulation was slightly high. The researcher decided to conduct further analysis to examine if there were sex differences between emotional self-regulation subscales namely cognitive reappraisal and expressive suppression. Table 4.17 presented the results.

**Table 4.17**

*Description of the subscales of Emotional Self-regulation scores by Sex*

	<i>Sex</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
CR	Male	417	21.68	4.05	.198
	Female	319	20.97	4.17	.234
ES	Male	417	12.28	3.81	.187
	Female	319	12.12	3.77	.211

*Note.* CR = Cognitive Reappraisal; ES = Expressive Suppression; M = Mean; SD = Standard Deviation; SE = Standard Error.

Table 4.17 revealed that male participants achieved a mean score that was higher ( $M = 21.68$ ,  $SD = 4.05$ ) in cognitive reappraisal subscale than female participants ( $M = 20.97$ ,  $SD = 4.17$ ). Interestingly, male participants registered a higher mean in expressive suppression as well ( $M = 12.28$ ,  $SD = 3.81$ ) than female participants ( $M = 12.12$ ,  $SD = 3.77$ ).

#### **4.5.2. Risk Taking Behavior scores by sex**

To obtain the mean and the standard deviation, the participants' scores on risk taking behavior were analyzed. Table 4.18 presented the results.

**Table 4.18***Description of Risk Taking scores by Sex*

	Sex	N	M	SD	SE
RT	Male	417	54	10.63	.52
	Female	319	55	11.10	.62

*Note.*  $N = 736$ , RT= Risk taking;  $M$ = Mean;  $SD$  = Standard Deviation;

$SE$ = Standard Error

Table 4.18 shows a higher mean score for risk taking behavior in favor of female participants ( $M = 55$ ,  $SD=11.10$ ) compared that of male students ( $M = 54$ ,  $SD$  10.63). The researcher conducted further analysis to determine if there are differences concerning participants' sex in the three levels of risk taking behavior, namely general invulnerability, danger invulnerability and interpersonal invulnerability. The results were presented in Table 4.18.

**Table 4.19***Description of the Subscales of Risk Taking scores by Sex*

	Sex	N	M	SD	SE
GI	Male	417	20.99	5.86	.29
	Female	319	20.94	6.26	.35
DI	Male	417	16.30	4.06	.19
	Female	319	16.31	3.93	.22
II	Male	417	16.85	4.28	.21
	Female	319	17.31	4.47	.25

*Note.*  $N=736$ .  $M$ = Mean;  $SD$  = Standard Deviation;  $SE$  = Standard Error; GI= General Invulnerability;  $DI$  = Danger Invulnerability;  $II$  = Interpersonal Invulnerability

As shown in Table 4.19, male students had a higher mean in general invulnerability subscale compared to female students. On their part, female students registered higher mean scores than their male counterparts in the other

two subscales; danger invulnerability and interpersonal invulnerability. It is interesting to note that, although female students had higher mean scores than male students in the two subscales, these differences were not significant.

#### **4.5.3 Hypothesis Testing on Sex Differences in Students' Emotional Self-Regulation and Risk Taking Behavior**

The third hypothesis was to find out whether the sex differences in students' emotional self-regulation and risk taking behavior were significant or not. This was accomplished through formulation of a third null hypothesis:

H<sub>0.3</sub>: There are no significant sex differences in students' emotional self-regulation and risk taking behavior.

Two supplementary null hypotheses were advanced in order to test this hypothesis:

H<sub>03.1</sub>: There are no significant sex differences in students' emotional self-regulation.

#### **4.5.4 Testing the First Supplementary Null Hypothesis**

H<sub>03.1</sub>: There are no significant sex differences in students' emotional self-regulation

Testing of this null hypothesis involved using participants' emotional self-regulation scores to conduct an independent samples t-test. Table 4.20 presented the findings.

**Table 4.20***Independent Samples t-test for Emotional Self-Regulation Scores*

		<i>t</i>	<i>df</i>	Sig.(2-tailed)
ESR Score	Equal variances assumed	2.06	734	.04
	Equal variances not assumed	2.05	675.21	.04

*Note.* *N*= 736 *ESR* = Emotional self-regulation; *df* = degrees of freedom

As observed in Table 4.20 there were significant sex differences in emotional self-regulation between male and female students. The difference was in favor of male students ( $t(734) = 2.06, p < .05$ ). Therefore, the first supplementary null hypothesis was rejected meaning that male students were more emotionally self-regulating than female students.

The researcher then subjected the individual emotional self-regulation subscales to a further independent sample t-test. This was done to reveal the significance of sex differences among the subscales. Table 4.21 presented results.

**Table 4.21**

*Independent Samples t-test of the Subscales of Students' Emotional Self-Regulation*

	<i>t</i>	<i>df</i>	Sig. (2-tailed)	<i>MD</i>	<i>SED</i>
CR	2.35	734	.02	.72	.31
ES	.56	734	.57	.16	.28

*Note.* *df* = degree of freedom; *MD* = Mean difference; *SED* = Standard error of difference; *CR* = Cognitive Reappraisal; *ES* = Expressive suppression

From results in Table 4.21, the indication was that there existed sex differences in cognitive reappraisal ( $t(734) = 2.35, p < .05$ ). However, the sex differences in expressive suppression was not statistically significant, ( $t(734) = .57, p > .05$ ). Male students endorsed a higher cognitive reappraisal that was statistically significant than female students. Further, male students had also higher endorsement of expressive suppression that was not statistically significant. Due to these results, the first supplementary null hypothesis was rejected while the second null hypothesis was retained.

#### **4.5.5 Testing the Second Supplementary Null Hypothesis**

The following null hypothesis was formulated in order to ascertain the significance of sex differences in students' risk taking behavior. The hypothesis was as follows:

H<sub>0;1</sub> There are no significant sex differences in students' risk taking behavior.

The following supplementary hypotheses were further formulated to further analyze the data using independent sample t-test.

H<sub>0;1</sub> There are no significant sex differences in students' general invulnerability

H<sub>0;2</sub> There are no significant sex differences in students' danger invulnerability

H<sub>0;3</sub> There are no significant sex differences in students' interpersonal  
invulnerability.

Table 4.22 presented the results.

**Table 4.22***Independent Samples t-test for Risk Taking Behavior*

	<i>t</i>	<i>df</i>	Sig. (2-tailed)
RT Equal variances assumed	-.95	734	.34
Equal variances not Assumed	-.94	668.87	.35

*Note.* RT: Risk Taking; *df* = Degrees of Freedom  
*N* = 734

As shown in Table 4.22, female students were more likely to be risk takers compared to male students, though the difference was not significant  $t(734) = -.95, p > 0.05$ . Based on this outcome, the first null hypothesis was retained. The conclusion therefore was that sex differences in risk taking behavior were not significant.

Further tests were conducted to establish the significance of sex differences regarding the three subscales of risk taking behavior. An independent samples *t*-test was conducted on the three individual subscales. Table 4.23 presented results.

**Table 4.23***Independent Samples of t-test of the subscales of Students' Risk Taking*

	<i>T</i>	<i>df</i>	Sig.(2-tailed)	MD	SED
GI	.12	734	.05	.45	-.83
DI	-.05	734	.96	-.01	.30
II	-1.43	734	.15	-.47	.33

*Note.* GI= General Invulnerability; DI = Danger Invulnerability; II = Interpersonal Invulnerability; *df* = degrees of freedom; MD = mean difference; SED = standard error of the difference.  
*N*=734

As observed in Table 4.23, the means of the two groups were all statistically significantly different. Based on these findings, all the three supplementary hypotheses were retained.

#### **4.5.6. Discussion of the Results**

It was postulated that there were no significant sex differences in emotional self-regulation and risk taking behavior. The findings revealed that male students were significantly emotionally self-regulated than female students. Similarly, male students had a higher endorsement of cognitive reappraisal subscale than female students. Further, male students had a higher endorsement of expressive suppression although not statistically significant.

The study results concur with a study by Mutweleli (2014), which investigated academic motivation and self-regulated learning, as predictors of academic achievement among form three secondary school students. Results found that male students scored higher in self-regulation in learning than female students. Self-regulation is a characteristic of emotional self-regulation.

The study findings were generally inconsistent with those conducted earlier. In one such study, Aldao and Hoeksem (2011) investigated sex and age differences in emotional self-regulation strategies and their relationship to depressive symptoms in San Fransisco Bay-California. Findings revealed that maladaptive emotional self-regulation strategies consistently related to higher levels of

depressive symptoms among university students regardless of sex. These results are also consistent with those of Aldao et al. (2010) who found maladaptive strategies of emotional regulation strongly related to psychopathology across the sexes.

The study results were also contrary to those found by Haron et al. (2010) Malaysian academicians who investigated gender influence on emotional regulation among university lecturers. Higher emotional regulation was found in female lecturers. These specific results seem to corroborate those by Hill et al. (2012) in an earlier study where male students scored higher on general invulnerability. This could be attributed to the fact that male students feel more sensitive when faced by psychological threat.

According to the study findings, the sex differences in the participants' risk taking domain were not significant in all the three subscales (general, danger and interpersonal invulnerability). Notably though, in the risk taking domain, as well as in the danger and interpersonal invulnerability subscales, females had a slightly higher mean score. These findings may be explained from the point of view of current social sensitization. The fact that female students seem to score higher in risk taking behaviors may be attributed to the girl child empowerment that has taken root in the recent past boosting their confidence to higher levels. It further explains why the female students similarly scored higher in the danger

invulnerability scale that involves felt invulnerability against physical risks like accidents and drug use.

Their higher score in interpersonal invulnerability, which is about threat posed by social disappointment, may explain their fears of being seen as weak after being accorded so much support and empowerment. On the other hand, male students' seemed to score higher in general invulnerability that is related to psychological distress. This may mean that they are affected by the neglect emanating from the elevation of the girl child which may have caused their self-esteem to decline. Additionally, their tendency to apply the expressive suppression (keeping emotions from showing during social interactions) strategy of emotional regulation may also contribute to the psychological distress.

The results therefore, seem to disagree with most previous findings that report males as more of risk takers than females. A research study by Bartolome et al. (2016) reported that, in addition to perceiving behaviors as less risky, males engaged in more risks and were less sensitive to negative outcomes compared to females. These results mirrored those observed among Chinese 14-19 year olds which revealed that low perception of contracting STI/HIV was significantly associated with male adolescents (Sychareun et al., 2013). Varied results were reported by Mwamwenda (2014) in a study among university students drawn from three African countries. The focus was to find out their likelihood of contracting HIV/AIDS. All participants claimed invulnerability except among

females in Tanzania. Considering that HIV/AIDS is mainly contracted through irresponsible sex considered a risk taking behavior. Generally, all risk taking behaviors by students are likely to come with consequences that may interrupt concentration in learning hence compromising academic achievement.

#### **4.6 Prediction Model of Academic Achievement from Emotional Self-**

##### **Regulation and Risk Taking Behavior**

Objective four in the study focused on determining predictive model of academic achievement from emotional self-regulation and risk taking behavior. In this section, the results of analysis of students' emotional self-regulation and risk taking and their relationship with academic achievement are presented. The null hypothesis was designed for testing as follows:

H<sub>04</sub>: There is no significant prediction model of academic achievement from emotional self-regulation and risk taking.

There were two predictor variables and one outcome variable in the hypothesis. The hypothesis was made more testable by subjecting each individual predictor variable to a simple regression analysis. This was to establish the value of their separate predictive weight on academic achievement. The null hypotheses were advanced:

H<sub>04.1</sub>: There is no significant prediction model of academic achievement from emotional self-regulation.

H<sub>04.2</sub>: There is no significant prediction model of academic achievement from risk taking.

#### 4.6.1 Testing the first supplementary Null Hypothesis

H<sub>04.1</sub>. There is no significant prediction model of academic achievement from emotional self-regulation

A simple regression analysis was conducted to determine whether students' emotional self-regulation predicted academic achievement. Table 4.27 presented the results.

**Table 4.24**

*Model Summary of Students' Emotional self-regulation and Academic Achievement*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	<i>Std. E</i>	Durbin-Watson
1	.100 <sup>a</sup>	.01	.09	9.64	.46

a. Predictors: (Constant), Emotional self-regulation

b. Dependent Variable: academic achievement mean scores

Results in Table 4.24 showed that adjusted  $R^2$  of emotional self-regulation was ( $R^2 = .09$ ). Therefore, the implication was that students' emotional self-regulation contribution to academic achievement was .9%. From the results, the researcher was prompted to conduct an additional linear regression analysis to ascertain whether students' emotional self-regulation significantly predicted academic achievement or not. Table 4.25 presented the results.

**Table 4.25**

*Regression Analysis of students' Emotional self-regulation on Academic Achievement*

Model	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Regression	686.02	1	686.02	7.38	.07 <sup>b</sup>
1 Residual	68455.273	736	93010		
Total	69141.297	737			

*Note.*  $N = 736$ ,  $SS$  = sum of squares;  $df$  = degrees of freedom;  $MS$  = mean of the squares.  $F$  = critical value of  $F$ .

a. Dependent variable: academic achievement

b. Predictors: (Constant), Emotional self-regulation score

As shown in Table 4.25, emotional self-regulation has a positive and statistically significant predictive value on academic achievement ( $F(1, 736) = 7.38, p < .05$ ).

A regression analysis was further conducted to establish predictive weight of emotional self-regulation on academic achievement. Table 4.26 presented the results.

**Table 4.26**

*Predictive Model of Students' Emotional self-regulation on Academic Achievement*

Model		Unstandardized		Standardized		
		Coefficients		Coefficients		
		<i>B</i>	<i>Std. E</i>	<i>Beta</i>	<i>T</i>	<i>Sig.</i>
1	(Constant)	46.71	2.11		22.16	.00
	Emotional regulation	.17	.06	.10	2.72	.01

a. Dependent Variable: academic achievement *Note.*  $N = 736$ .

Total emotional self-regulation scores.

From Table 4.26, the regression analysis revealed that emotional self-regulation predicted academic achievement by contributing a statistically significant weight,

( $B = .10, p < 0.05$ ). This allowed for rejection of the first supplementary null hypothesis. The conclusion was that emotional self-regulation significantly predicted academic achievement. It was on the basis of the finding that the following prediction model equation was obtained.

$$Y = 46.71 + .10 (ESR) (R^2 = .06) p < .05$$

Where;

Y = predicted academic achievement score

ESR = Total emotional self-regulation scores.

#### 4.6.2 Testing the second Supplementary Null Hypothesis

H<sub>02</sub>: There is no significant prediction model of academic achievement from risk taking.

As a way of testing the hypothesis, a simple regression analysis was done to establish if academic achievement was predicted by risk taking behavior. Table 4.27 presents the results.

**Table 4.27**

*Model Summary of Students' Risk Taking and Academic Achievement*

Model	R	R <sup>2</sup>	Adj R <sup>2</sup>	SEE	Durbin-Watson
1	.03 <sup>a</sup>	.00	.00	9.69	.45

a. Predictor: (Constant), Risk taking interval

b. Dependent : risk taking

As shown in Table 4.27 adjusted  $R^2$  of the risk taking predictor variable was .00 implying that risk taking did not account for any variation in the students' academic achievement. To determine whether academic achievement was predicted by risk taking behavior or not, a multiple regression analysis was conducted. Table 4.28 presented results.

**Table 4.28**

*Regression Analysis of Risk Taking on Academic Achievement*

*ANOVA<sup>a</sup>*

Model		<i>SS</i>	<i>Df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
1	Regression	66.23	1	66.23	.71	.40 <sup>b</sup>
	Residual	69075.07	736	93.85		
	Total	69141.297	737			

*Note.*  $N = 737$ . *df*= degree of freedom; *ms*= mean square; *F* = critical value; *SS*= sum squares

a. Dependent Variable: academic achievement

b. Predictors: (Constant), Total Risk taking scores

From Table 4.28, risk taking behavior, unlike emotional self-regulation did not statistically significantly predict academic achievement,  $F(1, 736) = 0.71, p > .05$ .

The researcher then decided to establish how much weight of risk taking behavior predicted academic achievement. Regression analysis was conducted and Table 4.29 presented results.

**Table 4.29**

*Predictive Model of Students' Risk Taking on Academic achievement*

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	53.86	1.83		29.50	.00
Risk taking (RT)	-.03	.03	-.03	-.84	.40

*Note.*  $N = 736$ .

a. Total risk taking score.

b. Dependent Variable: academic achievement.

Table 4.29 shows the regression analysis findings which indicated that risk taking predictive weight on academic achievement was negative and non-significant ( $B = -.03$ ,  $p > 0.05$ ). Hence, the second supplementary null hypothesis was accepted. The conclusion reached by the researcher was that risk taking behavior had no significant predictive weight on academic achievement. Based on these results an equation model was expressed as shown:

$$y = 53.86 - .03(RT)$$

Where:  $y$  = Predicted academic achievement scores

RT = Risk taking behavior scores

The findings further indicated that, among the two variables, emotional self-regulation was responsible for a larger variation in the students than risk taking. This is specifically when each individual variable is studied separately. The researcher then decided to find out whether the two predictor variables combined,

predicted academic achievement. A multiple regression analysis was therefore done in order to achieve this. Table 4.30 presented results.

**Table 4.30**

*Regression Analysis of Predictive Weight of Emotional Self-regulation and Risk Taking on Academic Achievement*

*ANOVA<sup>a</sup>*

Model		SS	df	MS	F	Sig.
1	Regression	35452.45	2	397.91	4.28	.01 <sup>b</sup>
	Residual	12922243.82	735	92.99		
	Total	12957696.27	737			

*Note.* SS = Sum of square; df = degrees of freedom; MS = mean squares; F = Critical value of F

- a. Dependent variable: Mean score of Academic Achievement
- b. Predictors: (constant), Emotional Self-regulation and Risk Taking

Table 4.30, reveals that combined, emotional self-regulation and risk taking statistically and significantly predicted academic achievement,  $F(2, 735) = 4.28$ ,  $p < .05$ ). To establish how the two predictor variables predicted academic achievement, a predictive model was established. This was achieved by performing a further multiple regression analysis. Table 4.31 presented the results.

**Table 4.31**

*Multiple Regression analysis for Predicting Academic Achievement from Emotional Self-regulation and Risk Taking*

Model	<i>B</i>	Std. Error	<i>Beta</i>	<i>t</i>	sig
1 (Constant)	48.46	2.65		18.28	.00
ESR	.17	.06	.10	2.80	.05
RT	-.04	.03	-.04	-1.09	.28

*Note.*  $\beta$  = Beta; SE = Standard Error; ESR = Emotional Self- regulation; RT = risk Taking

a. Dependent Variable: academic achievement

Table 4.31 revealed that as far as academic achievement was concerned, the higher statistically significant predictive weight, was from emotional self-regulation ( $B=.10$ ,  $p<.05$ ) and not risk taking. This is consistent with findings observed earlier that, singly, emotional self-regulation contributed positively to academic achievement while risk taking behavior registered a negative predictive weight that was non-significant on academic achievement ( $\beta = -.04$ ,  $p > .05$ ). However, when combined, emotional self-regulation and risk taking behavior recorded a significant predictive weight on academic achievement ( $F(2, 735) = 4.28$ ,  $p < .05$ ), adj.  $R^2 = .01$ ). The adjusted  $R^2$  value of .01 implied that 15% of the academic achievement was contributed by emotional self-regulation. Risk taking did not statistically significantly add to the prediction. In reference to the results in Table 4.33, the first supplementary null hypothesis was rejected and a predictive model obtained as presented in the equation.

$$\hat{y} = 48.46 + .17 (\text{ESR}) - .04 (\text{RT}) \quad (R^2 .01) \quad P < .05$$

Where:  $\hat{y}$  = predicted academic achievement score; ESR = emotional self-regulation; RT = risk taking

The researcher then decided to find out the relative predictive weight of the individual subscales of students' emotional self-regulation and risk taking on academic achievement. A multiple regression analysis was conducted to demonstrate the significance of the weight the subscales of the two variables contributed to academic achievement. Table 4.32 presented the findings.

**Table 4.32**

*Multiple Regression for Predicting Academic Achievement from Subscales of Emotional Self-regulation and Risk Taking*

Model	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>T</i>	<i>Sig.</i>
1 (Constant)	49.13	3.04		16.18	.00
CR	.17	.09	.07	1.95	.05
ES	.17	.095	.07	1.82	.07
GI	.03	.06	.02	51	.61
DI	-.07	-.09	-.03	-.73	.47
II	-.12	.08	-.06	-1.44	.15

*Note.* CR = Cognitive reappraisal; ES = Expressive Suppression; GI = General Invulnerability; DI = Danger Invulnerability; II = Interpersonal Invulnerability; *B*= Beta; *SE* = Standard Error

Table 4.32 revealed that, among the five subscales, three, cognitive reappraisal, expressive suppression and general invulnerability recorded a positive predictive weight on academic achievement though statistically non-significant. Further, both cognitive reappraisal and expressive suppression had the highest positive predictive weight while general invulnerability had the lowest. The other two subscales danger invulnerability and interpersonal invulnerability posted a negative non-significant predictive weight on academic achievement, with interpersonal invulnerability having the higher negative significant predictive

weight while danger invulnerability had the lowest. Overall, the five subscale of emotional self-regulation and risk taking behavior combined did not significantly predict academic achievement, ( $F(5,732) = 2.06, p > .05$ ).

**Table 4.33**

*Regression analysis of the subscales of students' Emotional self-regulation and risk taking behavior on academic achievement*

Model		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
1	Regression	958.59	5	191.72	2.06	.069 <sup>b</sup>
	Residual	68182.71	732	93.15		
	Total	69141.30	737			

*N* 737

a. Dependent Variable: Mean scores for Academic Achievement

b. Predictors: (Constant), Cognitive reappraisal, expressive suppression, general invulnerability, danger invulnerability, interpersonal invulnerability

The results in Table 4.33 shows that combined, cognitive reappraisal, expressive suppression, general invulnerability, danger invulnerability and interpersonal invulnerability did not statistically significantly, predict academic achievement,  $F(5,732) = 2.06, p > .05$ . Therefore, the null hypothesis was accepted based on the results.

#### **4.6.3. Discussion of the Results**

The researcher's main hypothesis was that emotional self-regulation and risk taking behavior predictive weight on academic achievement was not significant.

The study findings revealed that, among the two predictor variables, emotional self-regulation had a statistically significant predictive equation on academic achievement. Risk taking behavior on the other hand did not statistically significantly predict academic achievement. From the multiple regression results, combined emotional self-regulation and risk taking behavior revealed significant predictive values to academic achievement. Additionally, emotional self-regulation emerged as the stronger predictor of academic achievement compared to risk taking.

Further, analysis of the five levels of emotional self-regulation and risk taking behavior (cognitive reappraisal, expressive suppression, general invulnerability, danger invulnerability and interpersonal invulnerability) revealed statistically non-significant predictive weight on academic achievement. Nonetheless, it was observed that once tested separately, students' cognitive reappraisal and expressive suppression registered the highest most significant and positive predictive weight on academic achievement followed by general invulnerability. Danger invulnerability and interpersonal invulnerability revealed the lowest negative non-significant predictive weight on academic achievement.

Results of the current study are in line with some studies done earlier by and Bamidele and Zakaria (2015) using 300 Nigerian undergraduate students using a descriptive *ex-post facto* approach. Study results reported emotional problems as one of the factors that predict low academic performance in Mathematics. This

implies that, with better control and management of emotions, a student is capable of high academic achievement not just in mathematics but in other subjects as well. Further, Bahman et al. (2017) found that emotional self-regulation had a stronger predictive value on academic achievement compared to other variables. Findings by Ahmed et al. (2013), singled out emotions as a main predictor of self-regulated learning and Mathematics achievement. The findings also supported those by Mestre et al. (2017), who reported emotional self-regulation as a significant predictor of students' resilience leading to academic achievement. In line with results of the current study, Bahman et al. (2017), found out that emotional regulation predicts academic achievement.

On the other hand, study results on the prediction model of emotional self-regulation and risk taking on academic achievement contradicted those by Cetin (2015). The study investigated academic motivation and self-regulation learning using university undergraduates in the US using academic motivation scale. In that study, emotional self-regulation showed a non-significant prediction to academic achievement when compared to other characteristics.

Related findings were found in a research done by Hafiz (2015) using 127 psychology students in a Malaysian University. This researcher found that among the emotional self-regulation strategies namely cognitive reappraisal and expressive suppression, only expressive suppression correlated significantly with students' academic achievement. Cognitive appraisal showed a non-significant

correlation with academic achievement. However, regression model revealed a non-predictive value of cognitive reappraisal and expressive suppression on academic achievement. Further, Blair (2017) reported a non-predictive relationship between students' risk behavior and academic achievement.

A key observation from the study is that studied individually, risk taking behavior as a predictor variable contributed a non-significant variation towards academic achievement while emotional self-regulation contributed more significantly. However, when combined, the two predictor variables explain for a more significant variation of academic achievement. This may imply that as long as a student applies appropriate emotional self-regulation strategy, they are able to rethink and appraise potentially risk taking situations and achieve better academic achievement because they are able to control their emotions.

These results may also mean that apart from emotional self-regulation and risk taking behavior, there may be other factors, individually or jointly that affect students' academic achievement. These could be personal or environmental or the curriculum.

#### **4.7 Exploratory Analysis**

The current research reported a significant correlation between emotional self-regulation and academic achievement. Further, it revealed that the predictive weight of risk taking on academic achievement was negative. The researcher got

interested in conducting an exploratory analysis on how participants' sex and age interacted with emotional self-regulation and risk taking to predict academic achievement.

#### 4.7.1 Relationship between Emotional Self-regulation and Academic

##### Achievement by Sex

Interaction between emotional self-regulation and academic achievement given participants' sex was analyzed. Table 4.34 presented results.

**Table 4.34**

*Relationship between emotional self-regulation and academic achievement by Age*

Sex		Academic achievement	
Male	ESR	Pearson	.12*
		Correlation	
		Sig. (2-tailed)	.02
		N	417
Female	ESR	Pearson	.04
		Correlation	
		Sig. (2-tailed)	.461
		N	319

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

*Note.* ESR = Emotional self-regulation

Table 4.34 revealed a positive correlation that was statistically significant with emotional self-regulation and academic achievement in favor of male students,  $r(417) = .12, p < 0.05$ . That of female students was  $r(319) = .04, < 0.05$ . This implied that emotional self-regulation in male students predicted higher academic

achievement compared to that of female students. All in all, the indication is that emotional self-regulation is an important component in academic achievement.

#### 4.7.2 Relationship between Emotional Self-regulation and Academic

##### Achievement by Age

The researcher further examined the correlation between emotional self-regulation and academic achievement given the age of the participants which ranged between 14 and 18 years. Table 4.35 presented the results.

**Table 4.35**

*Relationship between emotional self-regulation and academic achievement by Age*

Age in years			Academic achievement
14	ESR	Pearson Correlation	.18
		Sig. (2-tailed)	.59
		N	12
15	ESR	Pearson Correlation	.18*
		Sig. (2-tailed)	.02
			174
16	ESR	Pearson Correlation	.05
		Sig. (2-tailed)	.36
		N	340
17	ESR	Pearson Correlation	.07
		Sig. (2-tailed)	.41
		N	138
18	ESR	Pearson Correlation	.14
		Sig. (2-tailed)	.46
		N	33

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

*Note.* ESR = Emotional self-regulation

Table 4.35 revealed a statistically significant positive relationship between emotional self-regulation and academic achievement for participants aged 14 and 15 year. Ironically, though the correlation was positive in participants of all ages, those aged 14 and 15 seems to have better emotional self-regulation predicting academic achievement than the older ones aged 16, 17 and 18. Further analysis on the relationship between risk taking and academic achievement given students' sex was conducted. To do this, a test was done on the second predictor variable. Table 4.36 presented results.

**Table 4.36**

*Relationship between Risk Taking behavior and academic achievement by Sex*

Sex			Academic achievement
M	RT	Pearson	-.02
		Correlation	
		Sig. (2-tailed)	
F	RT	N	.78
		Pearson	-.04
		Correlation	
		Sig. (2-tailed)	
N	.51		
		N	319

*Note.* *M* = Male; *F* = Female; *RT* = Risk taking;

As shown in Table 4.36, the relationship between risk taking and academic achievement for participants by sex was negative for both sexes though statistically non-significant. This finding may imply that students could get involved in risk taking behaviors without serious impact on academic outcomes.

To determine the relation between risk taking and academic achievement given the participants' age, further analysis was conducted. Table 4.37 presented results.

**Table 4.37**

*Relationship between Risk Taking and academic achievement by Age*

Age in years			Academic Achievement
14	RT	Pearson Correlation	.26
		Sig. (2-tailed)	.41
		N	12
15	RT	Pearson Correlation	-.03
		Sig. (2-tailed)	.66
		N	174
16	RT	Pearson Correlation	-.04
		Sig. (2-tailed)	.48
		N	340
17	RT	Pearson Correlation	.01
		Sig. (2-tailed)	.92
		N	138
18	RT	Pearson Correlation	-.04
		Sig. (2-tailed)	.83
		N	33

*Note.* RT = Risk taking

As shown in Table 4.37, the relationship between risk taking and academic achievement for participants by age was not statistically significant,  $p > 0.05$ . Notably though, there was a correlation between age and academic achievement for ages 15, 16, and 18. Interestingly, age 14 registered some significance followed by age 17. This implied that at 14 years, they did well academically probably because they were still in the earlier stages of adolescence meaning they were not very much exposed to risk taking behavior as yet. Additionally, the results showed the existence of an association between students' age and risk taking.

### **4.7.3 Discussion of Results**

From the results of the exploratory analysis, it was evident that emotional self-regulation had more predictive weight on academic achievement in male students more than in female students. Secondly, as far as students' age was concerned, the relationship between academic achievement and emotional self-regulation was more significant at age 14 followed by age 17. The findings are comparable with those observed by (Mutweleli, 2014). He found participants who are younger reporting more use of self-regulated learning strategies. Self-regulation is a characteristic of emotional self-regulation.

Even though non-significant, a negative correlation between risk taking behavior and academic achievement for both male and female students was reported. This finding agreed with Elkind's (1967) theory tenet of personal fable that gives adolescents a sense of invulnerability which is associated with risk taking behavior. Academic achievement was found to be associated with risk taking behavior in terms of age. Of note, is the fact that, as students' age increased, the more their risk taking affected their academic achievement. This could mean that, the older students are more involved in risk taking behavior which in turn, distracts them from learning activities hence low academic achievement.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

The final chapter is made up of four parts. A general overview of the study findings are summarized in part one. Part two discusses the inferences of the findings, while conclusions of the study are presented in part three. Finally, part four presents policy recommendations and suggestions for future investigation.

#### **5.2 Summary**

The research set out to explore how emotional self-regulation and risk taking are predictive of academic achievement among form two students in Nairobi City County. Differences in sex, given emotional self-regulation and risk taking behavior were also examined. Further, the investigation demonstrated a prediction model for students' academic achievement from emotional self-regulation and risk taking behavior. Ultimately, an exploratory analysis assessed whether students' age and sex had any link with academic achievement given the two variables.

In summary, objective one was designed to determine if there is a significant relation between emotional self-regulation and academic achievement. Study findings revealed a positive and significant correlation between emotional self-regulation and academic achievement. On further analysis, results revealed that among the two emotional self-regulation strategies, only cognitive reappraisal

correlated significantly and positively with academic achievement. Expressive suppression had a positive statistically non-significant correlation with academic achievement.

Objective two of the study investigated the correlation between risk taking and academic achievement. A statistically non-significant and negative correlation with academic achievement was found. Further, the results revealed that, of the three levels of risk taking behavior, two of them (danger invulnerability and interpersonal invulnerability) had a statistically non-significant negative relationship with academic achievement. At the same time, general invulnerability correlated positively to academic achievement though not significantly.

Objective three was designed to establish whether there existed sex differences in students' emotional self-regulation and risk taking behavior. The analysis revealed that male students demonstrated a significantly higher endorsement of emotional self-regulation and cognitive reappraisal than female students. Similarly, male students registered a higher mean score in expressive suppression subscale though not significantly. In regard to risk taking behavior, female students attained a higher mean score compared to their male counterparts although statistically non-significant. Among the three levels of risk taking, female students attained a higher mean score in two of them; danger invulnerability and interpersonal invulnerability than male students. Male students

had a higher endorsement of general invulnerability. However, their differences for all the three subscales were statistically non-significant.

Objective four of the study was to establish a prediction model of academic achievement from emotional self-regulation and risk taking behavior. Multiple regression results from the two main predictor variables, that is, emotional self-regulation and risk taking, demonstrated a significant predictive equation to academic achievement. However, emotional self-regulation was the stronger predictor with risk taking contributing minimally to the equation. Further analysis revealed statistically non-significant predictive equation from all the five levels of emotional self-regulation and risk taking behavior to academic achievement. In the exploratory part, students' sex and age showed some impact on academic achievement given emotional self-regulation and risk taking behavior.

### **5.3 Conclusions**

In conclusion, objective one of the study was to investigate the correlation between the students' emotional self-regulation and academic achievement. Emotional self-regulation was found to have a relationship with academic achievement that was positive and significant. On analyzing the two subscales of emotional self-regulation both were positively related to academic achievement with cognitive reappraisal significantly predicting academic achievement. This is probably because students who engage more in cognitive reappraisal as a strategy are able to rethink and share their emotions enabling adaptive outcomes in such

students. On the other hand, expressive suppression, when used, discourages individuals from being aware of their feelings. This makes such individuals resist seeking or receiving help leading to poor coping abilities. It therefore hinders learning which may lead to low academic achievement. Finally, from a majority of studies explored, it seems that emotional self-regulation correlate with academic achievement regardless of level of schooling, cross-cultural differences, methodology and location.

The second objective was to examine the correlation between students' risk taking behavior and academic achievement. Based on findings from previous studies, it was expected that risk taking behavior and academic achievement would have a negative correlation. However, no significant relationship was found in this regard. Results showed a statistically non-significant relationship between the two variables. Among the three sub-scales of risk taking behavior, two of them, danger invulnerability and interpersonal invulnerability also revealed a negative statistically non-significant relationship with academic achievement. However, the general invulnerability subscale correlated positively but non-significantly with academic achievement. This may imply that the participants in the study, having rated themselves highly in emotional self-regulation were able to avoid risk behaviors and hence their academic achievement is not compromised. Further, the results seem to imply that students feel a little invulnerable when faced by external danger (danger invulnerability) and social disappointment (interpersonal invulnerability). On the other hand, they seem to feel vulnerable

when it comes to psychological distress (general invulnerability). This seems to agree with the imaginary audience tenet of adolescent egocentrism which opines that adolescents always feel that they are under scrutiny from others. Due to this, they often feel self-conscious a feeling that affect their thinking negatively.

The finding of the present study appears to contradict tenets in the Adolescent Egocentrism Theory Elkind, (1967), the second theory in the study. The tenet posits that, adolescents engage in risk taking behavior in the belief that no harm can come to them. It also contradicts the popular belief held for centuries that adolescence is a period of time when adolescents are prone to risk taking behaviors due to raging hormones. In contrast, findings of the present investigation seem to suggest that adolescents' behaviors are likely to be motivated by factors other than hormones.

This may also imply that, as much as students are faced with many situations that can expose them to risk taking opportunities, there is also a lot of information at their disposal. Therefore, they may indeed engage in risky behaviors but somehow are able to separate the negative effects of the said behaviors and school work. Another contributing factor that may be cushioning them from negative effects of risky behaviors could be the many programs put in place in schools to mentor students. These include guidance and counseling programs in schools as well as life skill lessons taught as part of curricula. There are also other mentoring programs within the community including in churches.

Objective three was to examine the sex differences in students' emotional self-regulation and risk taking behavior. Analysis revealed that male students were more emotionally self-regulated than female students. Similarly, male students, revealed a higher endorsement of cognitive reappraisal than female students. This implies that, when a student rethinks a situation, they are able to manage their emotions better leading to positive outcomes. On the other hand, female students were found to be more of risk takers than male students though the difference was non-significant. This may imply that as the world continues to enhance the girl child's image in the society, their confidence seems to go up to almost the same point as that of boys hence their feeling of invulnerability. Further analysis on the subscales revealed a higher score that was not significant in male students' expressive suppression and in general invulnerability. Female students had a higher level of danger invulnerability and interpersonal invulnerability but the difference was not significant. Taking cognizance of the fact that emotional self-regulation and risk taking behaviors are generally important concepts in life, continuous mentoring of both male and female students is encouraged.

The fourth objective focused on determining a prediction model which would show the interaction among academic achievement, emotional self-regulation and risk taking. The study results revealed that, combined, both variables had a significant and positive predictive weight on academic achievement. However, emotional self-regulation had the highest prediction score compared to risk taking which was statistically non-significant. Regarding the five sub-scales in the

emotional self-regulation and risk taking domains, the prediction scores were statistically non-significant.

The present findings may suggest that the upsurge of emotions and consequent lack of control always associated with adolescence may not be true for majority of students in the current world. However, this does not subvert the role played by emotional self-regulation in a student's life; more so, use of the appropriate strategy so as to do well in learning. The study results revealed that emotional self-regulation is an important factor in a student's life, regardless of their physical location in the world. It may therefore be prudent to take measures geared towards mentoring adolescent students, on appropriate emotional regulation strategies so as to effectively control their emotions. Additionally, the significant joint predictive weight of both emotional self-regulation and risk taking imply their importance in academic achievement. This, together with proper socialization, may enable students go through adolescence with minimal challenges for improved academic achievement.

## **5.4 Recommendations**

Based on the study findings, the following recommendations for policy and further research were made:

### **5.4.1 Policy Recommendations**

- i. Objective one sought to establish the relationship between emotional self-regulation and academic achievement. A positive statistically significant

relationship was revealed. The recommendation therefore, is for secondary school curriculum to include content geared towards application of appropriate emotional self-regulation strategies to enable students rethink emotional experiences before acting. This may prove to be beneficial in learning resulting in high academic achievement.

- ii. Objective two aimed at establishing the association between risk taking behavior and academic achievement. A negative association that was statistically not significant was revealed. Still, students need to learn skill that would help them safely navigate through risky experiences, concentrate in school work, promote their general wellbeing and academic achievement.
- iii. Objective three sought to explore the existence of sex differences in emotional self-regulation and risk taking behavior. The study findings revealed a higher emotional self-regulation capacity in favor of male students. Female students were reported to be more of risk takers than male students. Since emotional self-regulation was found to enhance thinking and emotional control, programs geared towards helping female students avoid unnecessary risk taking behavior are recommended in order to improve academic outcome.
- iv. Objective four intended was to determine a predictive model for academic achievement from emotional self-regulation and risk taking behavior. Since the two variables were jointly found to have a significant relationship with

academic achievement, teachers and other stakeholders in education may need to factor both constructs in the teaching of secondary school students.

#### **5.4.2 Recommendations for Further Research**

- i. The study was correlational in nature meaning that it was deficient on causal inferences. Future studies could therefore consider other approaches such as experimental methods and mixed methods in investigating academic achievement. Longitudinal study design could also be used by future researchers in order to follow developmental changes in emotional regulation and risk taking behaviors. The two designs may help address the issue of causality.
  
- ii. The study was conducted in one urban county and with Form Two students which makes up a small sample. Thus, the results may only be generalized to other Kenyan students and schools with caution. It is recommended that similar studies be conducted in different locations and with students at other levels of maturity such as Form One, Three, Four and university/colleges. This will assist in the control of environmental and level differences.
  
- iii. In the current study, data on emotional self-regulation and academic achievement was collected through self-report questionnaires. Therefore, cases of students giving the socially acceptable responses cannot be ruled out.

Future studies may include interviews to confirm students' responses and allow for qualitative data to complement and enhance self-report data.

- iv. In the current study, the finding indicated that female students are more risk takers than male students. A finding that is contrary to earlier studies as observed in reviewed literature. Future studies may investigate the reason behind this finding.

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## APPENDICES

### Appendix A: Informed Consent

Patricia W. Kimani  
Department of Educational Psychology  
Kenyatta University,  
P.O. Box, 43844,  
Nairobi.

Dear Participant,

I am a student undertaking a Doctor of Philosophy in Educational Psychology at Kenyatta University. I am conducting a research study targeting form two students in Nairobi County on Adolescent Emotional Self-Regulation and Risk Taking and as predictors of Academic Achievement. Kindly respond to the questionnaire items as honestly as possible. I assure you that your responses shall be treated with utmost confidentiality and for the purposes of research only. Your genuine responses will go a long way to increase knowledge on improvement of academic outcome.

You have been chosen to be in the study because you are an adolescent. Your participation is voluntary. If you wish to withdraw in the course of the study, you are free to do so. Your non participation or withdrawal from the study shall have no academic implication. I promise to share the findings with all participants of the study upon completion.

Your co-operation is highly appreciated.

Signature..... (I agree to participate in the study)

## Appendix B: Questionnaire for students

### Introduction

This study is on Adolescent Emotional Self-regulation and Risk Taking as predictors of Academic Achievement. Your responses will be treated with outmost confidentiality and used only for purposes of research.

### SECTION 1

Give the following information about yourself:

- a. Code number..... d. Type of School: Boys' Boarding.....  
 Girls Boarding..... Co-educational Day..... Boys Day.....
- b. Age.....years
- c. Sex (Tick one) Boy.....Girl.....

*Please read the following statements a tick (✓) against the answer that suits you most.*

*SD-Strongly Disagree D-Disagree N-Neutral A-Agree SA-Strongly Agree*

### SECTION 11: Emotion regulation scale

	<b>Cognitive Reappraisal</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1.	When I want to feel more positive feelings (such as joy or amusement), I change what am thinking about.					
2.	When I want to feel less negative feelings (such as sadness or anger), I change what am thinking about.					
3.	When am faced with a stressful situation, I					

	make myself think about it in a way that helps me stay calm.					
4.	When I want to feel more positive feelings, I change the way am thinking about the situation.					
5.	I control my feelings by changing the way I think about the situation am in.					
6.	When I want to feel less negative feelings, I change the way I'm thinking about the situation.					
	<b>Expressive suppression</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
7	I keep my feelings to myself.					
8	When I'm feeling positive feeling I'm careful not to express them.					
9	I control my feelings by not expressing them.					
10	When am feeling negative feelings, I make sure not to express them.					

**SECTION 111: Risk Taking scale**

	<b>General Invulnerability</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
1.	I'm unlikely to be injured in an accident.					
2.	Nothing bad will happen to me when I go to a place by myself.					
3.	There are times when I think I cannot be harmed by anything					
4.	I could probably drink and drive without getting into an accident.					
5.	I'm unlikely to get hurt if I did a dangerous thing.					
6.	Safety rules do not apply to me					
7.	It is not necessary for me to worry about being injured or harmed					
8.	It is just impossible for people to hurt me					
9.	I don't get hurt					
	<b>Danger Invulnerability</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
10.	Special problems, like getting an illness or disease, are not likely to happen to me					
11.	The problems that happen to people my age are unlikely to happen to me					
12.	Taking safety precautions is far more important for other people than for me					
13.	My feelings are easily					

	hurt					
14	The opinions of other people just don't bother me					
15	What people say about me has no effect on me					
	<b>Interpersonal Invulnerability</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
16	My feelings are easily hurt					
17	I am a weak person					
18	The opinions of other people don't bother me					
19	What people say about me has no effect on me at all					
20	I feel very badly when I know there is gossip about me					
21	It is just impossible for people to hurt my feelings					

**THANK YOU**

### Appendix C: Pro Forma Summary of Participants

**Participants' Code  
Number**.....

Gender:                      Boy ( )                      Girl ( ) Form Two

<b>Code No.</b>	<b>Examination</b>	<b>Total points</b>	<b>Mean score</b>
	Mid-term one 2019		
	End term one 2019		

## Appendix D: National KCSE Analysis

**TABLE 8: OVERALL NATIONAL GRADE SUMMARY FOR 2016**

<i>GENDER</i>	<i>A</i>	<i>A-</i>	<i>B+</i>	<i>B</i>	<i>B-</i>	<i>C+</i>	<i>C</i>	<i>C-</i>	<i>D+</i>	<i>D</i>	<i>D-</i>	<i>E</i>
<i>FEMALE</i>	58	2,685	6,581	10,204	13,649	17,238	22,960	30,979	41,632	57,487	77,718	18,077
<i>MALE</i>	83	1,960	4,394	7,012	10,096	14,969	21,832	30,047	39,319	54,648	72,211	15,322
<i>ALL</i>	141	4,645	10,975	17,216	23,745	32,207	44,792	61,026	80,951	112,135	149,929	33,399
<i>CUM % AGE</i>	0.02	0.83	2.73	5.71	9.83	15.41	23.17	33.74	47.76	67.19	93.16	98.95
<i>CUM. TOTAL</i>	141	4,786	15,761	32,977	56,722	88,929	133,721	194,747	275,698	387,833	537,762	571,161
<i>% AGE</i>	0.02	0.80	1.90	2.98	4.11	5.58	7.76	10.57	14.02	19.43	25.97	5.79

**TABLE 9 OVERALL NATIONAL GRADE SUMMARY FOR 2015**

<i>GENDER</i>	<i>A</i>	<i>A-</i>	<i>B+</i>	<i>B</i>	<i>B-</i>	<i>C+</i>	<i>C</i>	<i>C-</i>	<i>D+</i>	<i>D</i>	<i>D-</i>	<i>E</i>
<i>MALE</i>	2024	7952	13517	19826	25312	29556	33437	37482	40181	40442	25531	3127
<i>FEMALE</i>	661	4117	8410	13634	19269	25214	31476	36633	38976	39113	23127	2223
<i>ALL</i>	2685	12069	21927	33460	44581	54770	64913	74115	79157	79555	48658	5350
<i>CUM % AGE</i>	0.51	2.81	6.98	13.34	21.82	32.23	44.58	58.67	73.73	88.86	98.11	99.13
<i>CUM. TOTAL</i>	2685	14754	36681	70141	114722	169492	234405	308520	387677	467232	515890	521240
<i>% AGE</i>	0.51	2.30	4.17	6.36	8.48	10.42	12.35	14.10	15.05	15.13	9.25	1.02

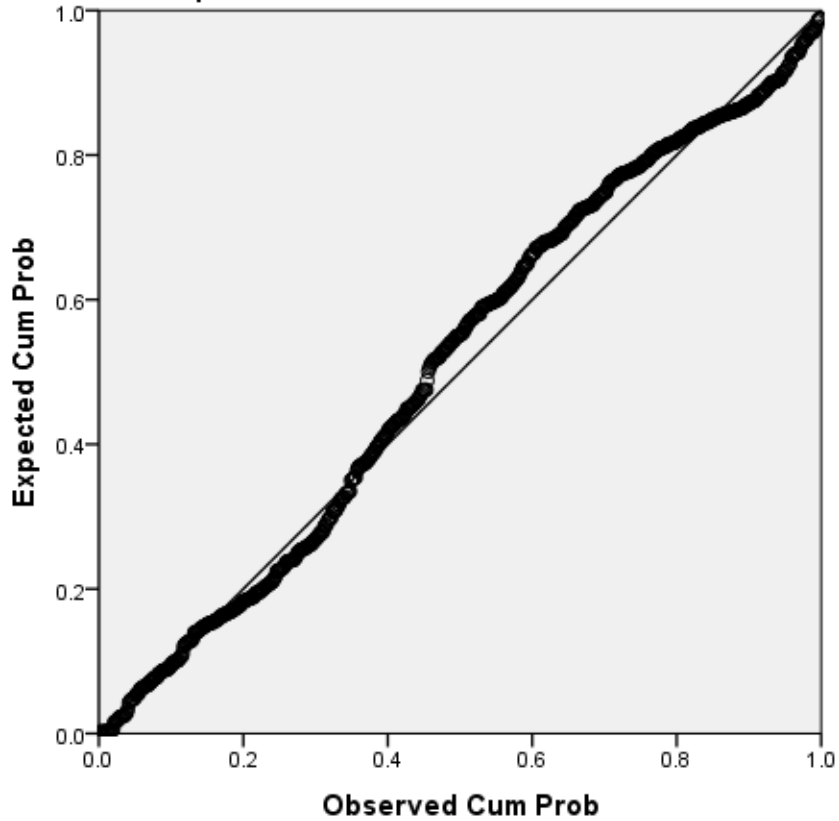
**Overall national grade summary for the 2014 KCSE Examination**

<b>GENDER</b>	<b>A</b>	<b>A-</b>	<b>B+</b>	<b>B</b>	<b>B-</b>	<b>C+</b>	<b>C</b>	<b>C-</b>	<b>D+</b>	<b>D</b>	<b>D-</b>	<b>E</b>
<b>MALE</b>	2133	7644	12606	17941	21997	25978	30699	36015	38749	37365	24542	3227
<b>FEMALE</b>	940	4124	7208	11378	16318	21450	27989	34662	37449	36136	23174	2409
<b>ALL</b>	3073	11768	19814	29319	38315	47428	58688	70677	76198	73501	47716	5636
<b>%AGE</b>	0.63	2.42	4.07	6.03	7.88	9.75	12.07	14.53	15.66	15.11	9.81	1.16
<b>CUM %AGE</b>	0.63	3.05	7.12	13.15	21.03	30.78	42.84	57.37	73.04	88.15	97.96	99.12
<b>CUM. TOTAL</b>	3073	14841	34655	63974	102289	149717	208405	279082	355280	428781	476497	482133

## Appendix E: Linearity Plot

### Normal P-P Plot of Regression Standardized Residual

Dependent Variable: TMeanscores



**Figure 4.3 Normal P-P Plot**

As shown in figure 4.3, the points are aligned along the diagonal line, indicating that the data was normally distributed.

## Appendix F: Research Authorization



KENYATTA UNIVERSITY  
GRADUATE SCHOOL

E-mail: [kubps@yahoo.com](mailto:kubps@yahoo.com)  
[dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)  
Website: [www.ku.ac.ke](http://www.ku.ac.ke)

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

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Our Ref: E83/25476/13

Date: 24<sup>th</sup> September, 2018

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

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. KIMANI P. WAKANYI - REG. NO. E83/25476/13

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

Ms. Wakanyi intends to conduct research for Ph.D. thesis entitled, **“Emotional Self-Regulation and Risk Taking as Predictors of Academic Achievement among Form Two Students in Nairobi County, Kenya”**.

Any assistance given will be highly appreciated.

Yours faithfully,

**REUBEN MURIUKI**  
**FOR: DEAN, GRADUATE SCHOOL**


RM/cao

# Appendix G: Research Permit from NACOSTI

**THIS IS TO CERTIFY THAT:** **Permit No. : NACOSTI/P/19/34633/27115**  
**MISS. PATRICIA WAKANYI KIMANI** **Date Of Issue : 24th January, 2019**  
**of KENYATTA UNIVERSITY, 36479-200** **Fee Received :Ksh 2000**  
**NAIROBI ,has been permitted to conduct**  
**research in Nairobi County**

**on the topic: EMOTIONAL SELF**  
**REGULATION AND RISK TAKING AS**  
**PREDICTOR OF ACADEMIC ACHIEVEMENT**  
**AMONG FORM TWO STUDENTS, NAIROBI**  
**COUNTY**

**for the period ending:**  
**23rd January, 2020.**

**Applicant's Signature** 

**Director General**  
**National Commission for Science,**  
**Technology & Innovation**


**THE SCIENCE, TECHNOLOGY AND**  
**INNOVATION ACT, 2013**

**The Grant of Research Licenses is guided by the Science,**  
**Technology and Innovation (Research Licensing) Regulations, 2014.**

**CONDITIONS**

- 1. The License is valid for the proposed research, location and specified period.**
- 2. The License and any rights thereunder are non-transferable.**
- 3. The Licensee shall inform the County Governor before commencement of the research.**
- 4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.**
- 5. The License does not give authority to transfer research materials.**
- 6. NACOSTI may monitor and evaluate the licensed research project.**
- 7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.**
- 8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.**

**National Commission for Science, Technology and innovation**  
P.O. Box 30623 - 00100, Nairobi, Kenya  
TEL: 020 400 7000, 0713 788787, 0735 404245  
Email: dg@nacosti.go.ke, registry@nacosti.go.ke  
Website: www.nacosti.go.ke

**REPUBLIC OF KENYA**  
  
**NACOSTI**  
**National Commission for Science,**  
**Technology and Innovation**  
**Serial No.A 22813**  
**CONDITIONS: see back page**

## Appendix H: Research Authorization from NACOSTI



### NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,  
2241349, 3310571, 2219420  
Fax: +254-20-318245, 318249  
Email: dg@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

NACOSTI, Upper Kabete  
Off Waiyaki Way  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No. **NACOSTI/P/19/34633/27115**

Date: **24<sup>th</sup> January, 2019**

Patricia Wakanyi Kimani  
Kenyatta University  
P.O. BOX 43844-00100  
**NAIROBI.**

#### **RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on "*Emotional self regulation and risk taking as predictor of academic achievement among form two students, Nairobi County*" I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **23<sup>rd</sup> January, 2020.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**GODFREY P. KALERWA MSc., MBA, MKIM  
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nairobi County.

Approved  
15/2/2019

**COUNTY COMMISSIONER  
NAIROBI COUNTY  
P. O. Box 30124-00100, NBI  
TEL: 341666**

The County Director of Education  
Nairobi County.

**Appendix I: Research Authorization from Ministry of Education**



Republic of Kenya

**MINISTRY OF EDUCATION**

**STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION**

Telegrams: "SCHOOLING", Nairobi  
Telephone; Nairobi 020 2453699  
Email: [rcenairobi@gmail.com](mailto:rcenairobi@gmail.com)  
[cdenairobi@gmail.com](mailto:cdenairobi@gmail.com)

REGIONAL COORDINATOR OF EDUCATION  
NAIROBI REGION  
NYAYO HOUSE  
P.O. Box 74629 – 00200  
NAIROBI

When replying please quote

Ref: RCE/NRB/RESEARCH/1/64/VOL.I

Date: 15<sup>th</sup> February, 2019

Patricia Wakanyi Kimani  
Kenyatta University  
P. O. Box 43844-00100  
NAIROBI

**RE: RESEARCH AUTHORIZATION**

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on "*Emotional self regulation and risk taking as predictor of academic achievement among form two students, Nairobi County*".

This office has no objection and authority is hereby granted for a period ending **23<sup>rd</sup> January, 2020** as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.

  
**JAMES KIMOTHO**  
**FOR: REGIONAL COORDINATOR OF EDUCATION**  
**NAIROBI**



Copy to: Director General/CEO  
National Commission for Science, Technology and Innovation  
NAIROBI

Appendix J: Map of Nairobi County

