

**EFFECT OF COGNITIVE DEFICITS ON VULNERABILITY TO DEPRESSION  
AMONG ADOLESCENTS IN SECONDARY SCHOOLS IN MERU COUNTY,  
KENYA**

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Fulfillment of the Requirement for the Conferment of Doctor of Philosophy in  
Counseling Psychology of Kenya Methodist University**

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## DECLARATION AND RECOMMENDATION

### Declaration

This thesis is my original work and has not been presented for a degree or any other award in any other University.


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### Recommendation


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## **DEDICATION**

To my wife Rev. Jenifer Kinya Gitiye and our beloved daughter Michaela Gatugi Gitiye

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## ABSTRACT

Adolescence represents a critical developmental period in life with increased clinical interests given that many mental disorders that occur in adulthood arise during adolescence. The main purpose of the study was to establish the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. The specific objectives were; to examine the effect of executive functioning disorders, language-based learning disorder, severe disruption in social cognition and the intervening effect of support system on cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. The study was anchored on meta-cognitive and social cultural theories. The study adopted descriptive survey design. The target population was the 27 secondary schools that were sampled using proportionate stratified sampling method in Meru County. The respondents were 27 principals/deputy principals and 27 counseling teachers sampled using purposive sampling method. Additionally, 176 English and mathematics teachers were sampled using simple random method. Eleven students from every sampled school were sampled using inclusion and exclusion methods. The principals/deputy principals and counseling teachers were interviewed. Mathematics and English teachers answered a questionnaire, while the students were assessed using depression tool and Montreal Cognitive Assessment (MoCA) tool for cognitive deficits. Pretesting of data collecting instruments was done in 3 schools in Tharaka Nithi County. Data was analyzed using descriptive statistics such as frequency, percentage and median. Additionally, inferential statistics from linear regression and multiple regression analysis were presented. SPSS was used to analyze the data presented. The findings were presented using tables, explanations, and figures. The study found out that schools had acquaintances to depression but did not articulately understand how to identify depression cases related to cognitive deficits. The conclusions on executive function disorder, was that there still lacked awareness on depression due to cognitive deficits. Additionally, on language-based learning disorder, schools lacked adequate financial resources, skilled language experts, and commitment towards establishing a system in creating awareness on impairment of language. Further, the conclusion made on severe disruption of social cognition was that schools did not put much emphasis on dictation of words to students since teachers were not enlightened on what dictation could do in a student's social cognition life. Adding to the conclusions made on support systems, students were only left out to accept and follow the policies as they were whereby any deviation would lead to stipulated punishments. The study recommended that the ministry of education should equip teachers with necessary skills to understand effect of cognitive deficits on the learners' mental wellness and engage psychologists in schools to diagnose and appropriately address mental health challenges among students. The school management should have supportive programs that enable learners with cognitive deficits and those that mitigate their causes and consequences.

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## ABBREVIATIONS AND ACRONYMS

CBH	Center for Brain Health
CBT	Cognitive Behavioral Therapy
CDT	Cognitive Development Theory
HOD	Head of Department
IPS	Intraparietal Sulcus
KeMU	Kenya Methodist University
KNH	Kenyatta National Hospital
KNBS	Kenya National Bureau of Standards
LBLD	Language-based learning disorder
MLD	Math Learning Disabilities
MCT	Meta-cognitive Theory
MoCA	Montreal Cognitive Assessment
MOE	Ministry of Education
MOH	Ministry of Health
MOI	Ministry of Interior
NACOSTI	National Commission for Science, Technology and Innovation
NCPD	National Council for Population and Development
NDAFW	National Drug and Alcohol Facts Week
PPA	Primary Progressive Aphasia
SCT	Social Cultural Theory
TSC	Teachers Service Commission

UNICEF	United Nations International Adolescents' Emergency Fund
VMI	Visuomotor Integration
WHO	World Health Organization
YHHOS	Yellow House Health and Outreach Services

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Adolescence is a formative period in life marked by intense processes of maturation which aim to develop a healthy personality adapted to cultural norms. Although this period of progressive transformation provides an opportunity for successful adaptation, in a number of adolescents this period can present a challenge. Accordingly, adolescence represents a critical developmental period with increased clinical interests given that many mental disorders such as depression that occur in adulthood actually arise during adolescence (Green et al., 2020).

Depression is a serious mental illness that negatively affects how one feels, the way one thinks and how one acts (American Psychiatric Association [APA], 2013; Liew, 2019). Depression has a negative influence whereby the thinking capacity of the depressed person is altered. Vulnerability to depression leads a person to being so much prone to falling into immense sadness and hopelessness (Liew, 2019). People get depressed due to many factors which include drug abuse, childhood trauma, abuse, conflict, loss of a loved one, social-economic status, hormonal levels and family history (World Health Organization [WHO], 2020). However, when depression is major and prolonged, it may mean that it is as a result of cognitive deficits (Green et al., 2020).

The most punctual composed records of what is presently known as depression showed up in the second thousand years Before Christ (B.C) in Mesopotamia (Reynolds &

Wilson, 2013). Like other psychological maladjustments, it was accepted to be brought about by wickedness. Thus, it was managed by clerics instead of physicians. The possibility of depression being brought about by devils and insidious spirits has existed in many societies, including those of the old Greeks, Romans, Babylonians, Chinese, and Egyptians (Reynolds & Wilson, 2013). Due to this conviction, it was frequently treated with strategies like beatings, actual limitation of movement, and starvation trying to drive the evil spirits out. The Greek and Roman specialists utilized remedial techniques like gymnastics, diet, music, showers, and donkey milk to treat their patients (Palfrey et al., 2005). Nevertheless, as time progressed, the society and the world at large became more open-minded towards acceptance of depression as a major mental health concern that needed to be addressed.

The main problems of the first half of the 20th century, such as acute infections and high infant mortality, have diminished in importance (Palfrey et al., 2005). Instead of physical disorders, mental illness accounted for a large and growing share of ill health among children and adolescents in Europe. The so-called “new-morbidity” including emotional problems, conduct problems and learning disabilities came to the fore in the middle of the last century. Henceforth, within the frame of the so-called “millennial morbidity” (Palfrey et al., 2005) mental health and socioeconomic influence on health had risen to achieve importance within child and adolescent health (Ravens-Sieberer et al., 2007). World health organization declared that young people’s mental health was a key area of concern to which professionals and policy-makers directed their attention (WHO, 2005).

Globally, Blad (2019) pointed out that there was a rise of 4.5percent in depression cases in America from 8.7 percent in a span of 12 years. These were adolescents aged 12-17

years (Blad, 2019). Notably, the age group mainly represented students in senior high school. Other studies such as Cuijpers et al. (2018) and Fitzpatrick et al. (2017) showed that indeed depression was present in adolescents over the years and it was escalated by the changing times in the 21<sup>st</sup> century. This was due to internal and external factors which limit availability of resources and general interactions of the adolescents with other people. As the global population is growing, there have been competitions on the few available resources such as education and basic needs. Problems caused by depression include suicidal cases when one is not able to relate well with peers and significant others; bodily harm that lowers one's esteem and causes trauma after excessive bullying for not being able to speak clearly owing to speech disorder; drop in academic performance especially when one cannot recall what they were taught as a result of executive functioning disorder; severe withdrawals from the rest of the students and school activities due to inability, poor behavior or negative thinking (Cuijpers et al., 2018; Fitzpatrick et al., 2017). Further, Olthuis et al. (2016) contended that there was abuse of drugs and substances due to poor emotional control when life became hard in California.

In addition, there have been many cases of suspension due to sudden change in behavior and negative attitudes which has resulted to deviant behaviors, disrespect or being arrogant to teachers in Texas State (Palpacuer et al., 2017). Palpacuer (2017) further notes that teenage pregnancies were high due to poor judgment hence easily convinced to engage in pre-marital sexual relations, risky sexual behaviors, and high school dropout rates. Further on, there have been violent cases of riots and destruction of school properties leading to students being expelled from school since they were deemed a threat



to other students and teachers in New York (Blad, 2019). Blad (2019) further adds that there has been increased eating disorders whereby the adolescent over-eats or under-eats when stressed, anxiety leading to low multitasking between academic and personal life situations, and high-level addiction to social media and drugs hence poor time management cases in Washington state.

Correspondingly, various studies have also pointed out increased trends in cognitive deficits and their effects on vulnerability to depression among adolescents. Studies such as (Fulmer et al., 2018; Patton et al., 2016; Santos et al., 2016; Van Heyningen et al., 2016), revealed out that depression was causing adolescents to be absent from schools when having low moments since they could hardly pay attention; high level of engagement into deviant activities such as stealing due to negative mindsets; reduced communication due to expressive language disorder; suicides due to poor emotional control; risky sexual behavior that led to transmission of HIV/AIDS and STD's due to poor judgment; noise making because of poor reading skills caused by reading disorders; poor hygiene due to lack of organizational skills; low self-esteem on girls before undergoing menstrual periods due to premenstrual dysphonic disorder; low attention in class especially when the adolescent was mentally disturbed; racial injustice and discrimination caused by students not being able to pronounce terms well; and poor grades since they could not recall what was taught in class.

In Asia, Cuijpers et al. (2018) argued that adolescents were battling drug and substance abuse as a way to suppress situational depression; mental illness where students were admitted in psychiatric facilities due to depressive psychosis. According to Fuhr et al. (2019), there were suicidal cases when students were bullied due to the incapability to

speak well; failure to relate with others in a healthy manner and examination irregularities such as copying since they could not compute basic arithmetic. Further, Le et al. (2016) and Zhou (2020) articulated that adolescents in India expressed various depression symptoms such as poor hygiene that included not taking baths because they could not multitask activities; poor academic performance due to inability to remember anything since they were not paying attention when the subject was being taught; difficulties in sleeping due to lack of good decision making which caused one to watch television, movies or spend time on social media sites till late hours; and low moods due to bullying by other students.

From a regional perspective, Africa has suffered from high teenage pregnancies and high school drop-out rates due to morality problems mostly associated with mental health challenges. A study by Mungai and Bayat (2019) gave an overview of various depressive symptoms inclinations in South Africa. The study used secondary data to check various patterns that people in South Africa were experiencing. This data ranged from social, economic and political trends. Further, Mungai and Bayat (2019) gathered that as a result of poverty and drugs, people living in low economic, social and political status had a higher chance of being vulnerable to depression as compared to people on the higher social, economic and political rankings. According to Egbe et al. (2017), other depression problems included lack of appetite and low self-esteem due to language impairment. Further, Fisher et al. (2017) and Magidson et al. (2017) plummeted into the argument by stating that there was an increased conflict between the depressed adolescents and the people around them since they were unable to control their emotions; self-inflicted pain whereby the adolescent cut and burn to punish themselves; poor concentration in class,

drug and substance abuse and risky sexual behaviors due to mental health related challenges (Aziato et al., 2016).

In addition, Velloza et al. (2020) conducted a study in East Africa which found out that adolescents always had issues pertaining to loneliness; medical illnesses such as paralysis; early pregnancies; and stressful school life especially when an adolescent could not join groups like debate clubs due to challenges in communications and low processing of information. Further, Kamndaya et al. (2018) and Culbreth et al. (2018) also partook on the depression problem among adolescents by pointing out that there was lack of communication due to inability to comprehend what others were saying; Neurochemical imbalance; and parental mental illness hence affecting an adolescent due to peer discrimination and low concentration. Locally in Kenya, Maina et al. (2020) expressed that the Kenyan adolescents were highly predisposed to depression and other mental health related challenges. Depression cases have been high in Kenyan perspective since there are extreme cases of peer discrimination; conflicts as a result of bullying; low self-esteem; and increased drug and substances abuse. Sharing the same thoughts, Kågesten et al. (2018) and Mirieri et al. (2020) indicated that there was a fifty percent increase in schools drop out and sexual abuse of the adolescents by close relatives and individuals known to the adolescents. This was because some of these rape victims lacked adequate communication and expressive skills as well as assertiveness and low safety measures in the society to cushion them against radicle, enticement and persuasion. Cognitive deficits which are also known as cognitive disorders are abnormalities that are exhibited in a person's brain whereby, they are unable to pay attention, suffer partial or complete loss of memory, and unable to be knowledgeable on various events happening

around them (Amariglio et al., 2018). They portray poor reasoning and judgment which makes their decision making inconsiderate. Cognitive deficits are characterized by inability to speak well; relate with others in a healthy manner, perceive and comprehend things and make sound decisions (McWhirter et al., 2020). There are different types of cognitive deficits such as temporary loss of memory (amnesia), impairment of language, mathematics learning disorders (dyscalculia), writing disorders (agraphia), reading disorders (alexia), executive functioning disorders, learning disorders and severe disruption in social cognition (Magidson et al., 2017; McWhirter et al., 2020; Junge et al., 2017). In this study, various cognitive deficits such as executive functioning disorders, language-based learning disorders and severe disruption in social cognition were studied since they are directly attributable and common to adolescents (Jessen et al., 2020; Liew, 2020). Additionally, the support system that surrounds adolescents was examined as the intervening variable

According to Jessen et al. (2020), cognitive deficits such as executive functioning are more common than it is usually assumed. As adolescents grow-up and move from one level of education to the other, it is always the rule of the thumb for them to be able to interact, write, speak and read fluently. Cognitive deficits such as language-based learning disorders are usually confused with foolishness especially pertaining to academics and relational matters. As adolescents are growing up, they are struggling in understanding what is happening in their bodies and around them hence any stigma brought about by their inability to read, write, speak and how they look causes more stress to them. This is because the support system such as a conducive environment and

psychosocial support around them discriminates these adolescents to a point that they feel unwanted.

To be able to offer solutions and mitigate the effect of cognitive deficits on vulnerability to depression among adolescents; various literatures have been documented in both developed and developing nations. In developed nations, Molinuevo et al. (2017) noted that there was encouragement of home-based interventions where medical practitioners visited pregnant mothers to train and discourage them from smoking or taking alcohol and substance abuse in America. Further, Kim et al. (2020) added that there were adolescent-parent interactions whereby families had reading and writing programs as well as health screening from hospitals in Europe; and cognitive behavioral therapy (CBT) for treatment of mentally challenged people. According to Hale et al. (2020) and O'Connor et al. (2019), planned recreational activities whereby adolescents were taught various life attributes like presenting poems and singing in Asia; television programs that imparted basic reading skills and socio-emotional virtues in United Kingdom; school programs in schools like guidance and counseling that were confidential for school-going adolescents where they were encouraged to speak up especially if they were going through any form of abuse; and training on self-defense strategies in case of being victimized in Asia.

In developing nations, Mirieri et al. (2020) revealed that there were programs initiated by the government to help parents cope with adolescents who had mental illness which was a major cause of cognitive deficit contributor in nations such as Tunisia. There were also programs in schools that were established whereby adolescents were kept in various peer groups which enabled them to share their life experiences together in Egypt. According to Mubangizi et al. (2020), there were universal skill building programs in elementary or

middle school, such as the 'I Can Problem Solve program' in South Africa. There were programs whereby parents and teachers' interests were considered; there were systems in the communities gathering such as in churches and social halls whereby adolescents whose parents had divorced or died were encouraged through speaking up on what was troubling them in a team of other adolescents who had gone through similar events in nations such as Rwanda. This has enabled adolescents to know that they are not alone (Mirieri et al., 2020; Mubangizi et al., 2020) while getting an opportunity to process their loss and spent up emotions. According to Osok et al. (2018), organizations are established for peace keeping and human rights in countries such as Somalia, Congo and Ethiopia where there were wars due to political instabilities. These organizations prevent adolescent from being psychologically affected through programs and continuous follow-up support. However, these initiatives and programs to improve cognitive deficits have encountered various challenges. Specifically, in Kenya, according to Ongeri et al. (2018) and Osok et al. (2018), there have been poor funding; lack of government timely support until when the damage is done such as when an adolescent committed murder, suicide or got pregnant; social stigma on adolescents who were undergoing various cognitive deficits and lack of training for teachers on how to identify adolescents with cognitive deficits.

According to Thiruane (2016), there was lack of resources for advanced medical treatment to adolescents whose cognitive deficits were worse. A report by UNICEF (2017) stated that there was lack of awareness in schools on how fellow students could accommodate a student who portray signs of cognitive deficits like being unable to recall what they were taught, ability to speak clearly, establish and maintain healthy

relationships and inability to read proficiently hence reading word by word. These barriers caused adolescents who suffer from cognitive deficits not to get help on time pushing them to depression. In Kenya, this problem is persistent in secondary schools as compared to other levels of education. This is because most of the students in secondary schools are at the age group between twelve to seventeen years (MOE, 2016; UNICEF, 2017). At this age, both physical and emotional developments are happening as they transition from adolescence to adulthood. They therefore do not really understand why they are not able to read, write, speak fluently, establish and maintain healthy relationships. This situation had for a long-time been mistaken for an adolescent being foolish and mentally disturbed. As a result, the adolescent felt humiliated and unwanted in the society (UNICEF, 2017) which is landed with many transitions and challenges. In addition, these young people are away from home and they do not spend more time with their parents hence they end up becoming victims of a weak family support system. An adolescent could get a thorough trolling from their parents/guardian and or teachers on why they are not able to compute simple mathematics or perform various basic tasks at their level as secondary school students.

Meru County is one of the forty-seven counties in Kenya established by the constitution of Kenya 2010. At the time of the investigation, Meru County had a total number of 389 secondary schools (MOE, 2016). They were grouped as national schools, county and sub-county schools. A report by ministry of education (MOE) (2016) stipulated that a huge number of students in secondary schools fall between the ages of 13 to 19 hence blending with WHO (2020) report which indicated that an adolescent is any person who is 12 to 19 years of age. According to Kenya National Bureau of Standards (KNBS, 2019), there was

a very high rate of drop-out in secondary schools in Meru County. This number of students dropping from secondary schools was higher than the number that dropped out of primary schools. In addition, there were high cases of reported teenage pregnancies, posttraumatic stress disorders, student unrest, reading disabilities, writing disabilities, fluent speaking disabilities and bullying in Meru County (Bariu, 2020; Mwingirwa, 2016; Mwiti, 2020; Thiruane, 2016; United Nations Adolescents' Fund [UNICEF], 2017).

Further on, secondary schools in Meru County were found to lack awareness on various types of cognitive deficits that existed and how to help students suffering from them. This was as a result of inadequately equipped guidance and counseling departments to support adolescents' mental health needs including cognitive difficulties that they faced (Bariu, 2020; Mwiti, 2020). These scholars further noted that, secondary school teachers had less or no formal psychological background and training to enable them identify early and seek further help from the school's administration to deal with mental health challenges (Mwiti, 2020) among students. This compounded the fact that schools also lacked preventive measures and programs that would mitigate or eliminate the effect of cognitive deficits on depression. It was further noted that the ministry of education did not have a specific policy or programs put in place to addressing students' mental health concerns where in w students suffering from cognitive deficits were would be equipped to overcome this challenge (Bariu, 2020). There were also inadequate resources in most secondary schools in Meru County such as special classrooms and reading aids among others that could help students suffering from cognitive deficits to overcome their challenges (Mwiti, 2020).



These challenges stated above, raised a concern for this study to investigate the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

## **1.2 Statement of the Problem**

According to various developmental theorists such as (Bowlby, 1983; Piaget, 1936; Miller, 1993) adolescents should be able to attain a high-level capacity to read, write, speak fluently and in a critical manner, gain self-acceptance, achieve social roles, as well as be able to make friends and maintain healthy relationships with their peers (Green et al., 2020). They should also be able to relate well with friends and family members and authority, express themselves articulately as well as to coordinate and blend classwork with other aspects of their life such as families and social life.

Onset for depression often takes place during adolescence, ages 12-19 (Hammen & Garber, 2019). Majority of these individuals are those in high school and those in colleges and universities. By age 18, up to 24% of adolescents may have already experienced a depressive episode (Lewinsohn et al. 2018). A large survey conducted for the Oregon Adolescent Depression Project found out that the mean age of onset for the first depressive episode was 14.9 years (Lewinsohn et al., 2018). During this period of development, there are many changes occurring as well as unique stressors present in one's life, with rapid emotional and physical changes expected to take place. As adolescents are transitioning to adulthood, they are expected to perform various tasks that are appropriate to this developmental stage in life (UNICEF, 2017).

However, often times, adolescents face a myriad of challenges that hinder their attainment of appropriate developmental milestones leading to mental health challenges. These challenges affect them in many ways with some ending up experiencing difficulties in life such as relating well with others, managing school and life demands and accepting themselves for who they are (Coogan et al., 2020). Consequently, there has been a high rise of depression cases among adolescents in Kenya which has been manifested through student's unrest, high teenage pregnancies, poor academic performance, drug and substance abuse, social withdrawals, suicidal ideation and suicide cases among school going students (MOH, 2021; MOH, 2019; Mutua, 2019). In most cases, parents and guardians, teachers, peers and the entire community who interact with these adolescents, do not have awareness or capacity to help those who are at risk or experiencing depressive symptoms. This has been compounded by lack of concise support system in schools and in the community to mitigate causes and consequences of depression among adolescents hence contributing to the rising numbers of them suffering from depression (UNICEF, 2017). When these stakeholders who are part of support system have no idea whether cognitive deficits exist in the first place, they tend to overreact, discriminate the adolescents or inappropriately address the problem or its cause hence making adolescents with cognitive deficits to continue suffering the brunt of the same.

Globally, studies conducted by Hale et al. (2020), Kim et al. (2020), Sun et al. (2020) and Termine et al. (2018) heavily investigated cognitive deficits which were at more advanced stages hence more medically inclined and failed to look into depression caused by cognitive deficits at early stages in patients. Locally, few studies that have been done

include Mwiti (2020), Mwingirwa (2016), Nyongesa et al. (2018) and Ongeru et al. (2018). These studies addressed depression in general and causal factors. However, there were hardly any studies done to address the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

### **1.3 Purpose of the Study**

The purpose of the study was to establish the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

### **1.4 Research Objectives**

The study was guided by the following objectives: -

- i. To examine the effect of executive functioning disorders on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.
- ii. To investigate the effect of language-based learning disorder on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.
- iii. To assess the effect of severe disruption in social cognition on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.
- iv. To examine the intervening effect of support system on cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

### **1.5 Research Hypothesis**

**H<sub>01</sub>:** Executive functioning deficits have no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya.

**H02:** Language-based learning disorder has no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya.

**H03:** Severe disruption in social cognition has no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya.

**H04:** Support system has no statistically significant intervening effect on both cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

## **1.6. Justification of the Study**

Adolescence stage is a period where sensitivity is a key factor in determining emotional support that the community could accord to the developing adults. As they are changing from adolescents to adults, the society needs to come in and provide material and social support to the young people to enable them successfully navigate through this stage in life. However, schools and communities where adolescents are being brought up today lack the necessary capacity and mechanisms to support them navigate through this stage in life.

Despite the increase in cognitive deficits occasioned by increasing academic pressure, life demands and transitions, family and society dynamics in modern times, globalization and environment factors, little has been done to address these challenges. This has consequently affected the ability to read, write and remember things that were previously taught and discharge age relevant tasks especially by the adolescents experiencing

cognitive deficits. In addition, their interactions with peers, teachers and parents have been greatly hampered hence developing negative coping mechanisms which have been injurious to self. This ultimately has led to withdrawal due to poor intra and inter-personal skills, lack of or low motivation in life, low-self-esteem, negative self-concept, indulgence in drugs and substance abuse, suicidal ideations and in some worse circumstances suicidal cases. This study therefore examined how adolescents become vulnerable to depression as a result of cognitive deficits that they go through during this developmental stage.

### **1.7 Significance of the Study**

The key beneficiaries of this study are the adolescents who are vulnerable to cognitive deficits. They would get exposed to immense information on understanding what cognitive deficits are, who is at risk and the risk factors, what help is available and how it would be accessed and utilised. This awareness could help adolescents improve their self-confidence by realising that they are not foolish but experiencing a treatable condition. They could further understand possibilities and resources at their disposal in preventing the cause and consequences of CDs.

The Ministry of Education could also get more supporting literature on how students in secondary schools are suffering from depression originating from cognitive deficits. This study could be used as supporting evidence that the ministry of education in Kenya could use to develop and enact relevant policies that addresses the issue of mental health among students in Kenya, deploy relevant resources aimed at addressing causes and consequences of cognitive deficits among adolescents as well as encouraging and

supporting relevant programs and activities to prevent and mitigate the effect of cognitive deficits among adolescents in secondary schools in Kenya.

Further, secondary schools' management could also benefit from this study since they could be in a position to understand that not all deviant behaviour manifested by adolescents is as a result of indiscipline and not all poor performance is as a result of being foolish or not having capacity to excel in academics. Therefore, some of those manifesting such behaviours or poor performance could be suffering from depression caused by cognitive deficits. This could enable secondary schools to begin creative local programs that address this challenge among the adolescents. It could also enable them to adopt relevant preventive and treatment strategies that mitigate the effect of cognitive deficits among adolescents.

Secondary school teachers would also learn a lot from the study on issues pertaining cognitive deficits as a causal factor of depression. This would enable them become more attentive when teaching the students to identify the ones suffering from cognitive deficits yet they do not know. This would enable them introduce intervention methods right on time since they understand what is ailing the students without necessarily bruising their self-esteem. For example, teachers would encourage students suspected to be experiencing cognitive deficits to read more. In case they make errors when reading, the teacher would offer moral support by correcting them without ridiculing or mocking them.

Further on, fellow students would also get equipped on what cognitive deficits are and how they affect their peers. This information would be key in changing their attitudes

towards other students and particularly the ones suspected to be experiencing cognitive deficits.

The other group of people that would benefit from the study is the psychologists who would find this study useful by getting updated data on the role of cognitive deficits in mental health in secondary schools in Meru County. The data would enable them identify areas that need immediate attention on matters regarding depression and cognitive deficits.

The study could also benefit the parents or guardians of the adolescents in schools. They would be able to learn about different types of cognitive deficits that exist such as executive function disorder, language-based learning disorder and severe disruption in social cognition. The knowledge acquired would enlighten them on the causes and management methods in case they have traced these types of cognitive deficits among their adolescent boys and girls. They would therefore be in a position to offer moral support and engage with experts such as psychologists before the cognitive deficits causes depression among their children and hamper their normal functioning.

Finally, the study could also benefit the body of research since it could provide foundational literature into which future researchers could rely on to develop the topic further. Moreover, the study would add new knowledge in the field of psychology when the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya would be known.

### **1.8 Scope of the Study**

This study investigated the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. Therefore, the study was confined to the boundaries of Meru County. The study investigated various cognitive deficits such as executive functioning disorders, language-based learning disorder, and severe disruption in social cognition as moderated by social support. This was because they were directly attributable and common to adolescents. The primary respondents were secondary school students aged 12-19 years. These students were in form one to form four.

The study focused on students in school and not school drop-outs since that is where the highest population of adolescents were located and that the school/academic demands affect and are affected by cognitive deficits. Other respondents were the principal or his/her deputy, head of the counseling department, Mathematics and English teachers based on their unique responsibility to causes and consequences of CDs among adolescents in secondary schools. This study did not cover cognitive deficits such as dementia since it is commonly brought about by old age hence not highly applicable among the study population (Orth et al., 2014). Additionally, the study did not investigate adolescents who were not in secondary schools since tracing them was difficult due to budget limitation and ineffective social systems that could be used to trace them.

### **1.9 Limitations of the Study**

The study was limited to change of school term timelines when collecting data in various secondary schools. This was due to changes of academic calendar which was recently introduced by the MOE due covid-19 pandemic (Ministry of Education-Kenya [MOE],



2020). This limitation led to low number of gathered data due to the respondents' pressure to cover the term/school work within the limited time they had. Therefore, the study maximised on data collection during the weeks when the respondents were not so busy with school work and activities depending on the timelines agreed upon by the individual schools' administrators. This enabled the study to avoid time wasting especially when data collection schedules differed with the secondary school terms timelines.

### **1.10 Assumptions of the Study**

- a) The study assumed that students, principals, deputy principals and teachers were willing to participate and give accurate response. This was in the sense that students who were considered low academic performers, going through disciplinary cases, experiencing intra and inter personal challenges and receiving psychological support feared that undertaking the study would embarrass them further or make them more vulnerable.
- b) Additionally, it was assumed that all stakeholders would provide the necessary support to effectively carry out this study in all its phases.
- c) The study assumed that adolescents in secondary schools in Meru County did not have serious brain damage problems but rather they experienced cognitive deficits that were not deadly but harmful in the long-term hence able to participate in the study.

## **1.11 Operational Definition of Terms**

### **Adolescents**

These are people who fall under the age of 12-19 years and are transitioning from adolescence to adulthood.

### **Depression**

Depression is a serious mental illness that negatively affects how one feels; the way one thinks and acts.

### **Cognitive deficit**

It is an inclusive term used to describe impairment in an individual's mental processes that lead to distortion in information processing including how an individual understands and acts in the world. They could be portrayed by having abnormalities in reading, writing, speaking fluently and exhibiting relational and low understanding capacity.

### **Executive Function Disorder**

The term "executive function disorder," or EFD, describes a condition in which a child or adult struggles significantly with planning, problem-solving, or other aspects of executive function. EFD is not currently an official diagnosis in the DSM-5, though executive function-related symptoms do appear in other DSM conditions.

## **Language- Based Learning Disorder**

Language-based learning disorder are cognitive deficits that lead to difficulty in grasping knowledge and subsequent inability to verbally express words through reading, writing, conducting arithmetic or non-verbal tasks.

## **Social cognition**

This is the ability to use one's mental abilities and skills in interactions with other people.

## **Support system**

This is the structure that exists and offers help by cushioning adolescents against the pressures and demands of their developmental stage, changes in their families and environment in which they live in. It also encourages adolescents to speak out and get help on various issues affecting them such as depression and other mental health related challenges.

## **Vulnerability**

This is the state of being easily exposed to a dangerous event, happening or environment which could have undesirable effect on one's daily activities.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this chapter, various past studies were examined guided by the objectives of the study. Literature was based on both developed and developing nations. Thereafter, theoretical review that was included in the chapter was meta-cognitive theory and social cultural theory. The chapter concluded by illustrating the conceptual framework of the study's variables.

#### **2.2 Vulnerability to Depression**

Depression has been a menace to people of different ages beginning from childhood to adulthood. There is always a way everyone figures out how their lives would look like but that is not always the case (Alsaad et al., 2020) in view of so many life stressors. Day-in-day-out people invest their resources and time into other people's lives and projects with a hope that they would benefit in one way or another. Nevertheless, that is not always the case since the way of thinking is very different and resources are not equally distributed to everyone (Maina et al., 2020). As time progresses, the sad reality that one's goals would be delayed or entirely fail to be achieved sets in. In consideration of adolescents most of whom are mainly in secondary schools, they have different expectations from people. They expect their parents to provide school fees, food, shelter, clothing and general guidance as well as moral support. On the other hand, it is expected that their teachers would teach them, examine them and shed light on educational matters. The type and quality of support they get in school and at home; mean a lot to the

adolescents especially considering that they spend much of their time during this stage in life at those two environs. Both parents and teachers offer both the moral support and caution them against the rough tides of adolescence.

Depression in adolescents is related to poor psychosocial support, high mental illnesses comorbidity, and chance of repetitive episodes or beginning of bipolar problem. Psychopathology, specifically nervousness and troublesome problems are all around distinguished risk-factors for later misery (The Lancet, 2017). Taking note of additional subclinical burdensome symptomatology, likewise named "dispiriting", likewise recognizes high-risk populaces, liable to become episode instances of sorrow. It is as yet hazy whether this condition is prodromal wretchedness, a particular clinical element or the statement of natural as well as mental weakness (Murray, 2012). Murray (2012) further fights that familial gamble for burdensome problems include both hereditary and psychosocial factors.

Additionally, household strife, poor communication and non-functional nurturing practices are often present in families in plenty and can be ensnared in relatives (Osborn et al., 2019). Research on individual weakness in teenagers has zeroed in on fickle and mental attributes. As per the Lancet (2017) demeanor attributes portray individual contrasts in reactivity and conduct. High emotionality characterized as the inclination to become vexed effectively and seriously has been related to an expanded gamble for ensuing significant discouragement (Osborn et al., 2019).

In any case, there has been high cases of depression as the adolescents try to ignore genetic related issue that are connected to mental status which incorporates low

confidence, low friendly skills and negative attitudes in Kenya (MOE, 2016; UNICEF, 2017). They are profoundly connected with negative behavioral manifestations; however, their mental motivator to begin medical help needs further examination (Coogan et al., 2020). Familial and individual weakness is probably going to increase the push down genic effect of life altering situations and psycho-social affliction. Counteraction mediations have been created in the United States for teenagers in danger for wretchedness (Seim & Spates, 2010).

In France, clinicians witness increasing requests from families with emotional sickness worried about hazard of parent-youngster transmission of burdensome weakness, counteraction and early recognizable proof of side effects (Harrar et al., 2010). To meet this sort of arising need and to regain family brokenness, a preventive program that targets adolescents from affected guardians and utilizations of family therapies are needed (Murray, 2012). Murray further brings up that family and individual meetings focus on better comprehension of ailment experience and urge the guardians to distinguish and cultivate strength in their youngsters. One more kind of preventive mediation and that which will be the focal point of this review; centers around teenagers with subclinical burdensome side effects, ultimately connected with conduct issues or elevated degree of parental struggle, selected in school settings (Murray, 2012). These school-based intercessions join mental and social critical thinking strategies. Both familial and school-based preventive mediations have demonstrated relevant and promising in high-risk teenagers (Harrar et al., 2010).

It is expected that the government would build conducive schools and provide security to the adolescents when in school from harm (Green et al., 2020). All these are just but

examples of the myriad of expectations adolescents have towards different people. However, it reaches a point where, these ‘other people’ expect something in return from the adolescents. For example, parents expect that adolescents would excel in school and have good manners. On the other hand teachers expect that the adolescents would avail themselves in classes to be taught and to do their examinations as required among other expectations (Beloe & Derakshan, 2019). Most of the adolescents are able to maneuver and meet the expectations. That notwithstanding, there are adolescents who fail to meet the expectations due to one reason or the other. The inability to attain the goals mostly sends the adolescents to depression (Junge et al., 2019). Cognitive deficit is one of the reasons why most adolescents get vulnerable to depression. Adolescents find themselves not able to read, write, talk, interact with others, and calculate mathematics among other weaknesses (Jessen et al., 2020). These weaknesses expose them to depression especially when the pressure to perform is very high (Kotseruba & Tsotsos, 2020).

A study by Wang et al. (2021) investigated how adolescents were struggling with depression caused through study problems. This was pinned on the relationship that was in between the adolescents and their parents. A cross sectional analysis method was used to conduct an online study on 6435 Taizhou, China’s high school students. Further, Wang et al. (2021) found out those adolescents in the region struggled with poor study habits at home, abhorrence to distance learning, and exposure to screen entertainment time. That is, they were easily distracted with online non-academic content.

Additionally, most of the parents were not adequately prepared to really establish the relevance of academic discipline on their children. This therefore left the students on their own to develop study timetables that fitted their moods. Additionally, students also

lacked computer devices and internet connectivity that would enable them have continuous access to digital learning process. The process involves attending online classes, holding online group discussions as well as sending and receiving assignments. These indicators were more prevalent with adolescents that had a poor relationship with their parents as compared to the ones that had good relations with their parents. Out of the 6435 students included in the study, 17 percent exhibited depressogenic symptoms. However, Wang et al. (2021) concentrated more on parent-adolescent relationship and failed to include adolescents' peer influence. That is, how adolescents' friends influenced and contributed to the study habits.

Additionally, Ayano et al. (2021) paid attention to a very special category of population. The study explored the depression rates affecting adolescents who had HIV/AIDS. Interestingly, Ayano et al. (2021) used secondary sources such as Scopus to gather data till 2020 on adolescents that experienced depression. Using a random effect meta-analysis, the study discovered that out of 2642, more than 661 adolescents with HIV/AIDS were suffering from depression. Additionally, 32.15% female adolescents had more depression symptoms compared to 25.07% males. This was because female adolescents felt more ashamed of their HIV/AIDS status more than males. Adding further, Ayano et al. (2021) found out the older adolescents such as the ones aged 15-19 years had 37.09% rate of depression symptoms while younger ones (10-14 years) had 29.8% rate. This was partly attributed to the issue concerning changes in their bodies as well as coping with academic related concerns. Nevertheless, Ayano et al. (2021) complained that having more than a quarter of population being depressed was attributable to them skipping school especially when HIV/AIDS became unbearable;



engaging in sexual activities so as to revenge through infecting others; dropping from school especially when HIV translated to full brown AIDS; feeling lonely since no friend wanted to associate with them and actively engaging in indiscipline cases while in school hence warranting suspensions. Additionally, Ayano et al. (2021) used secondary data to come to the conclusions which could be highly biased. The study could have gone to the depths of collecting primary data to make conclusions based on first hand data. This would have been more informative hence the current study would mainly collect primary data from the student respondents.

In Ethiopia, Girma et al. (2021) was concerned with what determined depression among the adolescents in the area of Jimma town. Further on, Girma et al. (2021) used cross sectional survey to screen 546 high school going adolescents by the help of patient health questionnaire (PHQ-9). The adolescents considered for the study were aged 16-18 years. Authoritatively, Girma et al. (2021) found out that 28% of the adolescents had depression while 72% did not have. From the population of depressed cases, 1.3% cases were extreme; 8.2% were average and 18.2% had low symptoms of depression. Some of the ways that adolescents showed to signal that they were depressed included missing school, abuse of drugs and engagement in risky sexual behaviors. However, Girma et al. (2021) concentrated on one category of adolescent who were aged 16-18 years and did not include those ones aged 12-15 years.

A study by Osborn et al. (2020) examined the prevalence rates, symptoms and various measurements of depression rates among Kenyan adolescents. The study was conducted on 2192 adolescents amongst whom 57.6% were females aged 12-19 years. The results found out that 28% had more of clinical types of depression while 30% had more of

anxiety depression. It was reported that the older the age of the adolescents the lower likely they were to show depression symptoms. Additionally, the more siblings an adolescent had the less likely they manifested depressive symptoms. The symptoms of depression investigated were loneliness, being withdrawn, sadness, drugs and substance abuse and indiscipline cases. As per Osborn et al. (2020) the conclusion was that adolescents in Kenya had more of anxiety symptoms meaning there was a chance for improvement at a higher rate compared to clinical depression. However, Osborn et al. (2020) concentrated and inclined more on female adolescents and less emphasis was made on their male counterparts.

### **2.3 Executive Functioning Disorders and Vulnerability to Depression**

Executive functioning disorder is a mental condition that affected how a person performed various basic roles that enabled someone to achieve their objectives in life (Kamndaya et al., 2017). Executive functioning disorders include inability to multitask, poor time management, low memory, lack of emotional control, poor organizational skills, inefficient processing information, and low attention (Amariglio et al., 2018). Globally, there were various studies done in relation to temporary loss of memories. In America, Mogle et al. (2020) examined the relationship that existed between memory loss and depression. The study gathered that when memory loss was higher, depression cases also went up concluding that depression was significantly influenced by memory loss. The study also found out memory loss decline experiences went higher depending on the age of the respondent. This study collected data from a population of old people

who were from the age of 65 and above creating a gap to ascertain whether conducting a study on adolescents' temporary loss of memory had any influence leading to depression.

Additionally, Hammond (2020) documented the memory loss and depression repercussions on adolescents because of being isolated during covid-19 time. The study began by stating that when covid-19 pandemic struck the world, many countries decided to limit the movement of people hence they started working from home or attend online classes. This led to isolation of people from their normal lives of interactions. In addition, Hammond (2020) underpinned the short-term loss of memory to low performance of normal routine activities due to long-time isolation. This was whereby adolescents started experiencing mild depression symptoms resulting to forgetting basic things such as calling in for covid-19 updates, replying emails, and attending online classes. The study by Hammond (2020) therefore gathered that lack of interactions of people could affect the mental health of a person causing loss of memory hence leading to depression. Additionally, Guessoum et al. (2020) agreed with Hammond (2020) further that those adolescents had a tough time at home due to frequent violence from other family members, grief due to covid-19 killing relatives; abuse of drugs, excess use of social media and home internment. This led to increase in depression cases of post-traumatic stress and anxiety disorders. From the perspective of adolescents who were mainly students, they had also been affected when schools were closed hence needed to stay at home for almost one year. There was need to assess some of the temporary loss of memories challenges they were facing and how that was affecting their daily lives when they were back to school.

A report by Center for Brain Health (CBH, 2020) explored how depressive mood could lead to short-term memory loss among the adolescents in America. The study noted that it was normal for someone to become forgetful as they age but at youthful stages, it was not normal but a cognitive problem. As per CBH (2020) the collected data was from 157 undergraduate students of which 97 did not have any symptoms of depression but the rest had. The respondents were supposed to answer questionnaires by indicating where true or false and after which they were to memorize some few numbers. It was discovered that the respondents who were depressed tended to be forgetful hence had a temporary loss of memory. This meant that when someone is depressed, they tend to be 12 percent mentally forgetful hence low concentration, low performance and strained relationships in their lives. This study however did not investigate the vulnerabilities to depression among these students. This is a gap that the current study seeks to address by investigating some of the causes of depression among adolescents in Meru County secondary schools.

Further on, Pile et al. (2020) assessed the impact of early mental illness interventions on depression among adolescents. The study used nine participants to partake in four stages intervention whereby they were trained on memory specificity and imagery rescripting. This is whereby these participants only recalled negative memories or not remembering specific basic memories respectively. The four stages had pre-intervention, post intervention and follow-up after three months. The respondents, who were adolescents, were required to fill in questionnaires and undertake various experimental tasks. Further, Pile et al. (2020) discovered that depressive symptoms such as low moods, lack of self-esteem, poor motivation and remembering negative thoughts were some of the issues experienced as a result of memory loss. However, Pile et al. (2020) found that these

depression rates reduced significantly when they were administered memory specificity and imagery rescripting. There were therefore calls for exploration of some of the ways through which secondary schools used to treat depression cases linked to loss of memory.

Adding to that, Beloe and Derakshan (2019) investigated how depression can be reduced through training the memory to adapt back through multi-tasking among adolescents. The study pointed out that there may be challenges such as poor motivation since the training is not something the adolescent can mentally relate to and lack of resources such as money and trained psychologists. The study by Beloe and Derakshan (2019) trained various adolescents for 20 days and afterwards there was a follow-up in a month's time. This involved adolescent practicing a skill, visiting a place or cooking a meal. This enabled the memory to be revived especially when an activity was performed repetitively till the memory recalled its past interaction with the activity. The argument by Beloe and Derakshan (2019) was that this had to be done in moderation so as to avoid complete memory loss due to strain. There was therefore need to investigate further the daily routines into which secondary school teachers jog the students' brains so as to revive them and hence reducing memory loss.

Regionally, Harrison et al. (2021) examined the mental health challenges adolescents face when coping with stress and their mental strengths in South Africa. The study revealed that adolescents in South Africa faced various eco-social challenges that pushed them towards being stressed. According to Harrison et al. (2021), there was a tendency of poor attention, emotional control and poor organizational skills. However, social support from their acquaintances, high self-esteem and pliability contributed a lot towards stable mental health. Therefore, Harrison et al. (2021) recommended that there should be more

intervention strategies to reduce lack and poverty induced mental distress. Turning our attention to Egypt, Elsajed and Alsehly (2021) assessed mental influences of physical abuse of adolescents. The researcher used questionnaires, interview for heavily depressed adolescents; and revised problem behavior checklist from Maternity and Adolescents Hospital, Al Medina (Al Monawara), and Kingdom of Saudi Arabia School.

While working on 186 respondents, Elsajed and Alsehly (2021) proclaimed that there was a very strong relationship between physical abuse with diminished esteem, emotional control, withdrawal, hyperactivity disorder and poor information processing mental challenges. The study gave a case whereby respondents pointed out that they experienced total mental black-out after the physical abuse to an extent whereby they did not know why and where they were. There was therefore need to investigate how physical abuse such as canning and beating had resulted to depression. In addition, there was need to establish how the adolescents that had undergone these physical tortures got help.

In Nigeria, Ogunsola et al. (2020) set out to find out the practices and estimates for drug abuse alert and depression abolition in South West region young people. The study observed that adolescents aged ten to twenty-five years were the main culprits in drugs and substance abuse. This had effect that lead to psychological disorders such as poor time management and lack of organizational skills whereby their long-term effect was depression. These young people suffered from frequent violence, poor judgements, low memory that was declining at very high rate, emotional instabilities and poor sleeping patterns. Therefore, Ogunsola et al. (2020) established the practices involved such as online and offline campaigns. Online campaign practices included harsh tags of 365 no drugs and substance abuse in Nigeria. Offline campaigns were National drug and alcohol

facts week (NDAFW) campaign as well as societal outreach and street conferences. This created a need to find out some of the campaign strategies used by secondary schools to eradicate abuse of drugs and substances that induced mental deficits.

Nationally, Kangaslampi et al. (2021) took an interesting turn on the effect of posttraumatic stress signs among help-seeking immigrants in Kenya. The study collected data from 2792 immigrants to analyze how their past traumatic events hampered their physical and mental growth. Therefore, Kangaslampi et al. (2021) proclaimed that the respondents experienced hyper vigilance, stammering and poor recall of events causing them to be detached from reality hence be withdrawn, confused, emotionally numb, have mental disturbance/ poor concentration, madness, poor recall of new information and aggressive at slightest provocation.

Locally, Wambua et al. (2020) analyzed the procedures and results of adolescent and adolescent centered psychotherapies currently in place in Kenya. From the study, acknowledged that there was an increasing concern for psychotherapies among adolescents in Kenya. This was because; in as much as there were few services that treat cognitive disorders in Kenya, their effectiveness was not known. Cognitive disorder was a more complex problem that took time to improve unlike other illnesses that took short-time. The time required to correct mental disorder depended entirely on the patient's willingness and the stage of disorder into which help was accorded at. Willingness of a patient was greatly hampered by the level of depression they were going through such as mild or severe depression.

Additionally, Wambua et al. (2020) investigated the psychotherapies offered at Kenyatta National Hospital (KNH) and used mixture of methods depending on several factors such as treatment results and psychotherapy offered at different stages of the treatment. In relation to this study, Wambua concluded that the area was still underdeveloped, had poor specialized services and supporting resources, lacked trained staff as well as appropriate policy framework. There was a gap in establishing what was known as effectiveness in psychotherapies, what was offered in psychotherapies and the consumer experiences in psychotherapies.

### **2.3.1 Summary of Executive Functioning Disorder Gaps**

The reviewed literature on executive functioning disorders such as Hammond (2020) and Guessoum et al. (2020) revealed how adolescents' life was greatly disrupted due to isolation at their homes during covid-19 pandemic. This isolation greatly affected their memory and interest on academic activities. However, these studies did not assess the challenges they faced due to temporary loss of memories and how that was affecting their daily lives now that they were back to school creating a gap for the current study. Other studies such as CBH (2020) deliberately linked depression to short-term memory while failing to investigate causes of depression among students. Additionally, Beloe and Derakshan (2019), Pile et al. (2020) and Wambua et al. (2020) examined various solutions that were used in treating poor executive functions such as early maternal intervention; memory training; administered memory specificity tests and treatments; imagery rescripting; and psychotherapies respectively. However, they all agreed a lot needed to be done since the area was underdeveloped hence creating a window for this study to explore on more interventions. Additionally, the reviewed literature ascertained



that there is a high tendency of forgetfulness among adolescent leading to depression; this was as a result of negative self-appraisal considering as not good enough or not as good as their peers. From these findings, it was revealed that when someone is depressed, they tend to be 12 percent forgetful hence low concentration, low performance and strained relationships in their lives. In addition, symptoms such as low moods, lack of self-esteem, poor motivation and remembering negative thoughts are some of the depressions experienced as a result of loss of memory. Studies have proved that there have been experiences of hyper vigilance, stammering and poor recall of events causing them to be detached from reality hence withdrawn, confused, emotionally numb, mentally disturbed, mad, or lacking retainment of information and aggressive at slightest provocation. Though they had sought psychiatric help, it was established that psychiatric centers are still underdeveloped, there are poor specialized services and supporting resources, they did not have trained staff nor did they have policies to guide on providing help on mental health issues.

#### **2.4 Language-based learning disorder (LBLD) and Vulnerability to Depression**

Language-Based Learning Disorder [LBLD] are cognitive deficits which renders a person experiencing them incapable to grasp information and subsequently unable to verbally express themselves using words through reading, writing, conducting arithmetic or non-verbal ways (Adams & Fins, 2017). There are different types of language-based learning disorders such as receptive language disorder, expressive language disorder, speech disorder, language delay disorder, reading disorder (dyslexia), writing disorder (dysgraphia), arithmetic ability (dyscalculia), non-verb learning disorder, Gerstman syndrome and aphasia (Michelle et al., 2019; Morsanyi, et al., 2018; Nathaniel et al.,

2020). Receptive language disorder is the inability of someone to comprehend both written and spoken language (Chung et al., 2020). Expressive language disorder is the inability of a person to speak fluently but they comprehend the language (Lein et al., 2020). Anomic impairment is the inability to recognize and name things when speaking and writing (Schwartz et al., 2018). Speech disorder is a condition caused by Alzheimer's disease and which causes a person to speak slowly in an impaired language (Nathaniel et al., 2020). Likewise, dyscalculia is a condition in which a person experiences challenges in learning mathematics related concepts meaning that they become unable to calculate simple mathematics (Kobayashi et al., 2019). One faces challenges in counting numbers backwards, remembering simple mathematic facts, calculating mathematical problems slowly, anxiety when doing mathematics, unable to add sums, and inability to mentally calculate arithmetic (Lein et al., 2020). Math learning disorders are anchored on five areas which are verbal, practognostic, lexical, graphical and operational disorders (Lein et al., 2020).

Writing disorder, also commonly referred to as agraphia, is the loss of ability to write in a person who previously knew how to write (Jessen et al., 2020). This is a condition in which someone's brain is not able to coordinate thoughts and the execution activity of the hand to script something that makes sense or use wrong words when they are communicating (Chung et al., 2020). Writing disorder is normally exhibited when someone erases frequently, has a sore hand as a result of cramped hand, is unable to place words within page margins of a book, has unfamiliar body and paper position when writing, writes incomplete words and poor spelling (Brousseau-Lapr e & Schumaker, 2020; Niolaki et al., 2020).

Globally, studies conducted pertaining how impairment of language predisposed one to depression is as discussed here below. For instant Dubois et al. (2020) considered how young adults in America were coping with disorders in language while putting emphasis on schooling, working and social life. The study worked on secondary data in database from the year 2005 to 2018, fifteen articles and questionnaires among young adults of ages 18-34 years were evaluated. In relation to this, Dubois et al. (2020) stated that 61.5 percent of adolescents had dropped out of school due to speaking disorders, poor academic achievements, low employment and job retention rates, low-income rates, low financial management abilities and high teen pregnancies. These issues were directly attributable to inability to speak fluently or write clearly. Therefore, Dubois confirmed that the most lender act of last result of these young adults when they experienced these challenges would be plunging into various types of depression and even suicides. However, the study did not investigate young adults who were aged between 12-18 years creating a gap on challenges that adolescents who have impairment of language face in secondary schools in Kenya.

According to Chung et al. (2020) many writing disorders were normally misunderstood and misdiagnosed in America. This was because they portrayed different characteristics at different ages. In relation to this, Chung et al. (2020) investigated various diagnoses that existed and how psychiatrics managed this deficit in America. The study identified various diagnoses that existed such as Minnesota handwriting assessment, evaluation tool of adolescents' handwriting, scale of adolescents' readiness in printing, detailed assessment of speed of handwriting and beery developmental test of Visuomotor integration (VMI). The management mechanisms used included accommodation whereby

a student was able to access resources such as special curriculum that fitted them without necessarily deviating from the main educational system; modification where the school provided creative local resources to help a student to learn comfortably, and remediation where the school was on the look-out to identify these deficits and provide early intervention before the condition worsened.

In as much as Chung et al. (2020) were informative, their study did not focus on various management mechanisms that were student focused; rather the study focused on school administration management mechanism. It was proved that no matter how the administration had made sure these students were comfortable in learning, how other students helped out or not could cause the student suffering from writing disorders to get depressed. This created a gap that the current study focused on to ascertain how normal students cope with students who have writing disorders. In another study, Girolamo et al. (2020) studied language aptitudes in adolescents and youths living with speech and peer interaction disorders. The study used 10 participants aged 14-21 years who undertook early grammatical impairment test. In relation to this, Girolamo et al. (2020) found out that there were major improvements on the tests done by adolescents and youths who were put in a small sized class with special education resources. This meant that the number of pupils in a class and special attention given to adolescent experiencing difficulties in language had a direct implication to their condition. This revelation posited a need to find out some of the special resources and ways in which teachers were paying attention in order to help adolescents experiencing language impairment.

According to Girolamo et al. (2020), writing disorders are often categorized into deep disorder, lexical/ surface disorder, phonological disorder, gerstmann disorder, peripheral

disorder and musical disorder. Deep disorder is the inability of a person to remember how words are written (Girolamo et al., 2020). Lexical/ surface disorder is the inability to spell, recognize or distinguish sound of the words when spelt (Girolamo et al., 2020).

Phonological disorder is the inability of a person to write down dictated words. Gerstmann disorder is a situation whereby one cannot compute mathematics and not be able to distinguish left to right side of the body (Girolamo et al., 2020). Peripheral disorder is the inability of a person to completely write whereby they are not able to connect letters to form words (Girolamo et al., 2020). Musical disorder is a type of writing disorder where a person who previously was able to read and write musical notes is unable to do so (Girolamo et al., 2020).

A study by Niolaki et al. (2020) examined the causes of single word spelling disorder in adolescents that speak English. The study consulted 144 adolescents who had a mean age of 7 years. In relation to this, Niolaki et al. (2020) assigned them a task to spell-out various English words exposed to them for a short duration of time. The study took keen note on their ability of writing down dictated words, rapid automatized identification, their ability to remember quickly the seen words; and their timely ability to pay attention to the rapidly seen words. According to Niolaki et al. (2020) found that reading disorders ranged from pure reading disorder, deep reading disorder, phonological reading disorder and surface reading disorder. Pure reading disorder is a condition where there is uneven extension of reading time (Niolaki et al., 2020). Deep reading disorder is a condition whereby a person makes reading error when reading out aloud but the word pronounced has a sound similar to the targeted word (Niolaki et al., 2020). Phonological reading disorder is a situation whereby a person gets challenges in pronouncing new words

compared to familiar words (Niolaki et al., 2020). Surface reading disorder is a condition where a person has to pronounce words so as to know their meaning (Niolaki et al., 2020). Thus Niolaki et al. (2020) asserted that adolescents who were basic spellers were able to write down dictated words, rapid automatized identification, and able to remember quickly the seen words. Those that had advanced their spelling spree were able to spell using short time on the rapidly seen words. That notwithstanding, Niolaki et al. (2020) did not address the adolescents' vocabulary strength which could have contributed to the success of the study.

Further, Nathaniel et al. (2020) analyzed case studies on various types of therapy used in speech and language disabled students. According to Nathaniel et al. (2020), pre- and post- measures on standardized language subtests, subjective self- and teacher ratings of communication, and the participants' impressions of the interventions were some of the therapies used. However, challenges experienced in accessing these therapies included limited finances, few qualified specialists and clarity of the therapy period. Failure to undertake the required therapies at the right time or in the right manner contributed greatly to deterioration of the problem hence low-self-esteem, reduced interactions with peers and increased aggression. Therefore, the current study took a step further to assess some of language therapies adolescents attended especially those with impaired language-based learning disorders.

Moreover, Komesidou and Summy (2020) examined attentions made to contrivance school-based screenings for students with language disorders. The study admitted that there were very frequent cases of students who were attending both primary and secondary schools who suffer from learning and language disorders. This therefore

promoted increased awareness of the situation but there was still low knowledge and lack of early tracing of adolescents with learning and language disorders for treatment. Therefore, Komesidou and Summy (2020) recommended the universal language screening to be done as early as possible once the problem was noticed so as to offer early interventions. The study however failed to consider other factors such as environmental and societal factors whereby an adolescent suffered due to upbringing in poor environment that did not encourage correction of language impairment. The current study investigated some of the environmental factors influencing early correction and treatment of language impairment among the adolescents.

According to Hobson and Bird (2019), there were very many cases of impairment of language among young people. The study acknowledged that there was still limited knowledge of language impairment in the society. This increasingly caused adolescents to be stressful and depressed to peer discrimination, poor performance, high school drop-outs, limited skills and limited access to therapy due to financial constraints. Further, Hobson and Bird (2019) categorically pointed out that there was a problem of imbrication of language impairment, emotional and behavioral problems. Therefore, the society did not really know what was affecting the adolescents among the three factors which led to wrong treatment. In addition, there were challenges of social isolation, reduced opportunities for acquiring good social skills and increased risk of poor self-esteem and poor emotional outcomes. That notwithstanding, Hobson and Bird (2019) used 15 adolescents as respondents which was a very small number as compared to the normal required threshold especially due to evenness of data analysis.

According to Darweesh et al. (2020), writing disorders were deficits that made it hard for the adolescents to spell, have poor handwriting and lack of organization of thoughts clearly when writing on a paper. The study further stated that people with writing disorders faced difficulties when placing their letters and numbers on page margins. Thus, Darweesh et al. (2020) assessed the relevance of Arabic training program on singing the alphabetic songs, reading words on flashcards, and handwriting the words as seen as a way of improving writing disorders in Egypt. The study used 90 adolescents aged 12 and half to 18 years old. The study using a quasi-experimental approach established that twenty cases of people living with writing disorders were able to write Arabic letters well despite their condition after a period of training. However, Darweesh et al. (2020) skipped on notifying us the duration of the training programs thereby creating a need to know the types of programs available in secondary schools in Meru County that train adolescents with writing disorders on articulate handwriting.

Further on, Lambert and Tan (2020) did a comparison analysis of students with math learning disorders with those who did not to distinguish whether really disorder in this area matters. Lambert and Tan (2020) confined themselves to 2477 adolescents who were in high school. The study also used secondary data from 2013 to 2017 on the results of examinations done by both parties. Thus, Lambert and Tan (2020) posited that students with the disorder performed relatively lower in school and most of them were slower in doing mathematical calculations leading to high frustration rates among students. However, Lambert and Tan (2020) contended that the studies done only concentrated on the examinations and mathematics results but not the process of mathematics learning. Therefore, a handful of the studies ever considered including the comments of



mathematics teachers but only the students with learning disabilities. The current study would go an extra mile and point out observations of students during a mathematics lesson to experience the learning process. In addition, teachers' opinions were also considered making this study comprehensive study in understanding the effect of language-based learning disabilities among adolescents.

In addition, Lein et al. (2020) explored factors that affected the effectiveness of various interventions that were utilized to support students with math learning disabilities. Lein et al. (2020) specifically looked at mathematical word problem solving interventions such as schema-based transfer instruction, schema-based instruction and problem-solving intervention. The study reviewed 33 secondary data of studies done on high school students. Thus, Lein et al. (2020) found out that the class of the student, type of intervention, the level of implementer rather than the teacher, and the measure applied played a significant role. Nevertheless, Lein et al. (2020) did not investigate other types of intervention such as peer assisted intervention and continuous formal assessment. Therefore, this study explored various mathematical solving interventions available in secondary schools in Meru Kenya whose purpose was to help students with math learning disabilities.

Further, Schwartz et al. (2018) concentrated on the transmission impairment of neural processing in adolescents with math learning disabilities (MLD). According to Schwartz et al. (2018), MLD was normally linked to intraparietal sulcus (IPS) part of the brain. IPS is a part of the brain that affects the mathematical aptitudes in a person. Therefore, Schwartz et al. (2018) used adolescents aged 12- to 16-year-olds to give an assessment that involved problems that were related to sums, divisions, multiplication, addition, and

reasoning mathematical statements. The study established that IPS in students with MLD was undependable, smaller and made a lot of errors on mathematical statements as compared to other adolescents. However, Schwartz et al. (2018) investigated adolescents aged 8 to 12 years old hence this study investigated adolescents aged 12 to 19 years old in secondary schools in Meru County. They were in addition given additional simple sums to calculate so as to measure their IPS capacities.

Additionally, Mammarella et al. (2018) investigated how mathematics was separated from anxiety especially on adolescents with extreme mathematical anxiety disorders. Mammarella et al. (2018) grouped adolescents with 10 to 18 years in four groups. One group had math learning disabilities and no math anxiety disorder. The second group had both math anxiety disorder and math learning disabilities. The third group had math anxiety disorder and no math learning disability. The last group had no math learning disabilities and no math anxiety disorder. They were given a task that involved engaging their minds on remembering basic mathematical concepts given. Thus, Mammarella et al. (2018) discovered that the third group were very proactive which interfered with their concentration hence half failed. The first and third group failed the test, while the fourth group passed the test. Therefore, Mammarella et al. (2018) emphasis was that there should be a way of distinguishing these groups in a school set up. There was therefore need to give a test to groups of adolescents in secondary schools in Meru County to check whether the results would be at par with Mammarella et al. (2018).

A study by Morsanyi et al. (2018) focused on the high cases of learning disorders in primary school going adolescents. According to Morsanyi et al. (2018), learning disorders were extreme cases whereby they could not be attributed to environmental

conditions or physical disorders. The study collected data from 282 primary school adolescents that were selected by inclusion and exclusion sampling criteria. They were given an English test. A hundred and forty-five (145) had extreme issues when it came to answering English test. Their gender did not contribute towards having learning disorders. Half of the sampled adolescents struggled with language, social, emotional and behavioral challenges. However, Morsanyi et al. (2018) study concentrated on primary school adolescents but the current study concentrated on adolescents in secondary schools.

According to Smith and Ryan (2020), there was a huge difference in understanding between single word and text reading among people. The study explored the relationship that existed between the comprehension of single word reading and text reading. Smith and Ryan (2020) gathered 13 people from Arizona to read silently and spell words. Later on, they were given a text to read silently and asked questions pertaining to the text details. It was gathered that the respondents understood the meaning of the words more when these words were placed in a text/ sentence format like as compared to just one word. However, Smith and Ryan (2020) ascertained that there was no relationship between silent or loud reading and understanding ability of the words or texts. Therefore, Smith and Ryan (2020) recommended that when a psychologist wanted to assess reading disabilities, caution should be taken especially by ensuring that they provided texts as compared to words because it was proven that there were people who got a meaning of words when they were placed in a text format. By doing this, one would avoid misdiagnosis which tampered with the psychological status of the patient pushing them to depression unknowingly.

Additionally, Hux and Mahrt (2019) explored types of interventions given to adolescents who suffered from distressing brain injury. The study offered treatment for two months during working week days. The various interventions provided were sight word trainings, modified Multiple Oral Reading (MOR) processes, functional reading tasks, and modified Copy and Recall Treatment. Sight word improved from 66 percent to 100 percent over the 2 months' time; MOR moved from grade one to five. The speed of reading improved by 11 words per minute from 31 words with an improvement of 8 percent decline of errors to 7 percent. The patients were also able to remember eight lists that had 15 words each out of the 15 lists issued. Thus, Hux and Mahrt (2019) confirmed that survivors of distressing brain injury suffered from reading and writing issues which made them feel useless and unwanted in the community. It was actually reported by Hux and Mahrt (2019) that most patients suffering from these brain injuries requested their close relatives or doctors to end their lives because their brains could not perform basic functions such as reading, eating and sanitation.

In another study, Smith and Clark (2019) investigated the impact of errors when reading in people with reading disorder' lives. According to Smith and Clark (2019), when people were reading, making errors affected their lives, negatively bruised their self-esteem, increasing anxiety, peer mocking, and encouraging avoidance of reading behavior. The researchers selected 8 people to undertake the study. Four of them had reading disorders while the rest did not have. Therefore, Smith and Clark (2019) discovered that the 4 people with reading disorders made more errors when reading as compared to their counter parts. The study advised that a reading test could be a perfect way to distinguish between people with reading disorders and those who did not. The

number of participants of the Smith and Clark (2019) study was very low compared to the thirty-threshold required in any study, hence the current study investigated more than thirty adolescents in secondary schools in Meru County, Kenya.

In addition, Woodhead et al. (2018) examined the effect of IReadMore words reading training among patients. This training was administered to 21 patients with stroke condition. This training was undertaken in a period of 8 weeks. Therefore, Woodhead et al. (2018) measured trained and untrained word reading among patients, text reading and sentence reading. The study proclaimed that there was 8.7 percent improvement in accuracy when reading after training of words and 2.5 percent when not trained. This improvement went as far as 3 months even after the training was stopped. Thus, Woodhead et al. (2018) admitted that sentence and text reading did not improve before, during and after the training. It was generally established that as a result of improvement of reading words, these patients improved their moods from being gloomy to being cheerful. This change in behavior enabled patients to get positive attitude towards their therapy and there were few cases of depression among them. Thus, Woodhead et al. (2018) paid concentration on only one type of patients under stroke condition. They did not investigate other patients with reading disorders (alexia) who had other brain injuries. This gives this study support to examine adolescents who have challenges in reading especially in secondary schools in Meru County.

Regionally, Pillay et al. (2020) established some of the roles of audiologists and speech therapists in South Africa towards contributing in sustainable development. Demotion of people suffering from language impairment was the main complain of Pillay et al. (2020).

The study indicated that in an African contemporary society, when someone could not communicate fluently, they got marginalized and avoided. According to Pillay et al. (2020), women made up the highest percentage of audiologists and speech therapists. They had independent offices in which patients came for various language impairment assessment and treatment. This made the venture very expensive to maintain causing these specialists to charge high rates so as to survive and pay bills. Thus, Pillay et al. (2020) stated that the number of specialists was one third against the two thirds language impaired people. Among the two thirds, 80 percent entailed young people of less than 20 years. There should therefore be framework to train more language specialists who serve the growing demand of language impairment correction. Interestingly, Pillay et al. (2020) concentrated on only two professionals who were audiologists and speech therapists. The study missed out in looking into other professionals such as pathologists who were also highly engaged in this area. This created a gap to identify some of the language impairment specialists that Meru County secondary schools have partnered with for the purposes of treating students with language disorders.

Marinelli et al. (2020) investigated the aptitude to learn new written words as modulated by linguistic orthographic steadiness. That is, how an adolescent learnt new words by spelling each letter in the new word. Therefore, Marinelli et al. (2020) used 163 adolescents of Italian speaking background and 123 from English speaking background to read and write novel written words. It was discovered that Italian adolescents had difficulties in correct spelling at first instance as compared to their English counterparts. It resulted to Italian speaking background adolescents to read letter by letter before

connecting them to form a word. For example, instead of spelling out rightly the word ‘discussion’, these Italian adolescents spelt it as ‘d-i-s-c-u-s-s-i-o-n’.

Once they spelt this way, they would then be able to spell it well at second instance. Therefore, Marinelli et al. (2020) concluded by stating that learning a language through linguistic orthographic steadiness varied on the age and classes of various adolescents. This revelation pointed out the need for this study to explore whether adolescents in secondary schools in Meru had similar challenges when spelling English terms. The finding would be very important since dictation was mostly used in secondary schools by teachers when giving notes. It would be therefore fair to establish whether adolescents are able to cope up with the dictation.

A study by Michelle et al. (2019) measured the influence that exists between language ability and mental health results in South Africa. In the study, 200 (13-year-old) respondents took part. Michelle et al. (2019) established that when an adolescent was unable to pronounce words and speak in a language clearly, it resulted to depression due to low self-esteem and negative emotions. Therefore, Michelle et al. (2019) encouraged parents to be more engaged at early stages of an adolescent so as to take note of any language inabilities for early treatment in their adolescent. This study approached language impairment as one way of raising awareness of mental health issues people suffer from quietly in the society. There are always negative perceptions from the community members who have relatives suffering from language impairment as though having been be-witched. Nevertheless, Michelle et al. (2019) concentrated on only one age set of 13 years old adolescents hence this study investigated adolescents beginning from 12 years to 19 years.

Further on, Brosseau-Lapr e and Schumaker (2020) expounded on the awareness of perfectly and imperfectly produced words in adolescents with and without phonological disorders. This was done to test on vocabulary in adolescents. Brosseau-Lapr e and Schumaker (2020) utilized 36 adolescents aged fourteen and fifteen years old. Eighteen of them had phonological disorders while the other 18 did not have. Perfect awareness of the words was lower on adolescents with phonological disorder as compared to their counter-parts. However, both groups exhibited omission of words but the group with phonological disorder got challenges in identifying words that sounded similar with the produced words. Brosseau-Lapr e and Schumaker (2020) concluded that pronunciation of words could be a great determinant in differentiating adolescents with phonological disorders.

In addition, Prunty and Barnett (2020) documented on the precision and steadiness of letter formation in adolescents with growth synchronization disorder. This study's purpose was to establish whether adolescents with growth synchronization disorder found it difficult in their handwriting. Thus, according to a study by Prunty and Barnett (2020) which used 28 adolescents aged 12 years to 15 years who were experiencing growth synchronization disorder and 28 normal adolescents. They were given a task to write alphabetic and copy tasks fast. It was established that adolescents with growth synchronization disorder had errors in shaping their letters as opposed to the other normal adolescents. In addition, they paused more and produced fewer texts. However, Prunty and Barnett (2020) concluded that more training was needed for adolescents who had writing disorders.



In Cameroon Oyono et al. (2018) investigated the frequency of language disorders among the pre-schools who spoke French. The study used 460 respondents who were aged 13-15 years old. They undertook a test called the evaluation du Language Oral to measure their language abilities. A pathologist oversaw the judgement of speech impairment. Therefore, Oyono et al. (2018) confirmed that 14.7 and 4.3 percent of the student had speech and language impairments respectively. However, 17.1 percent had both speech and language impairments. These adolescents as young as they were, suffered humiliation and discrimination from their peers. These figures as compared with other African regions were higher. The reason given by Oyono et al. (2018) was that there were handful speech and language services as well as professionals. That notwithstanding, Oyono et al. (2018) used adolescents aged 13-15 years to come to these conclusions. The present study widened the scope and concentrated on adolescents aged 12-19 years.

Further on, Mostafa et al. (2018) established the level of community knowledge on language impairment specifically delayed language in Upper Egypt. They proclaimed that there were very few studies done in this area. The study used questionnaires to collect data from 1500 respondents. According to Mostafa et al. (2018) the most suitable age to seek for help once a guardian notices language impairment or delayed issues was two years. However, Mostafa et al. (2018) complained that there was low awareness and negative attitudes from teachers whom it was established did not value early intervention. Nevertheless, Mostafa et al. (2018) did not investigate ways through which awareness was raised. It could be that the method of awareness rising was inadequate towards reaching out to the community members. Therefore, this present study went go an extra

mile in establishing some of ways through which awareness was raised in secondary schools in Meru County.

Akinoso (2020) explained the causal attributes and solutions given in secondary students who had learning disorders in Nigeria. Akinoso (2020) reported that some of the challenges faced by students included incomplete mastery of facts, sentences computational weakness, challenges in transferring knowledge and poor understanding of various subjects' content. The causal attributes included memory, cognitive development and visual-spatial ability. Therefore, Akinoso (2020) revealed various solutions such as using chalkboards, handouts, explaining the course work requirements, allocating more time for questions and answers. Further solutions were teaching using realistic demonstrations, alternative assignments and increasing time required for assignment submission thorough explanation when introducing a concept whereby the speed should be average and clarity and audibility in words. This study was done in Nigeria, hence the need to establish whether secondary schools in Meru County in Kenya would face similar challenges and whether solutions offered were similar with those of Akinoso (2020).

Further on, Garba et al. (2020) examined peer influence on learning anxiety in Nigerian secondary schools specifically in Sokoto State via photovoice method. The study commenced that in Nigeria, there was a high level of anxiety whereby students had excess fear when it came to subjects such as science and mathematics. Thus, Garba et al. (2020) used photovoice to capture speech and behavior especially when noting anxiety levels. The study found out that average and poor academic students' disturbance, the sharp students' domination in lessons, discouraging statements during class-time can cause an increase in anxiety. However, group discussions and positive advice reduced

anxiety. Garba et al. (2020) choice of photo-voice approach had limitations such as misinterpretation of the photos and voice and some students were shy hence not comfortable when their photos were taken.

In Egypt, Shawky et al. (2020) explored the differences in spatial ability between normal students and students with learning disabilities. The study selected 120 students from 5<sup>th</sup> grade with an average of 12 and half years to partake in the study. Half of them had learning disorders and half did not have. Therefore, Shawky et al. (2020) identified students with learning disorders following the use of learning disorders questionnaire developed from learning disability evaluation scale – reformed second edition (LDES-R<sup>2</sup>). The findings revealed that students with mental disorders had low spatial relations, mental rotation, visualization and orientation. The study only concentrated on one age group and class hence the current study explored diversely on adolescents aged between 12 to 19 years in different classes in secondary schools in Meru County, Kenya.

In addition, Hamukwaya (2020) assessed how grade 11 students in Namibia were coping with difficulties in learning. That is, consideration given on opportunities and improved teaching. Hamukwaya (2020) used 88 students who were identified through consultation with their teachers. The study discovered that the students did not seem to notice that they had difficulties as opposed to their teacher’s views. This discrepancy was brought about by students not accessing learning materials, lack of understanding what they were being taught, low experienced and educated teachers, negative perception and unsupportive school system. However, Hamukwaya (2020) did not investigate the possibility of upbringing conditions that may have hampered their learning disorders.

Nationally, Gibson et al. (2020) explored how covid-19 has impacted Kenya's speech-language pathological practices. According to Gibson et al. (2020), the only non-governmental organization that provided communication services in Western Kenya was the Yellow House Health and Outreach Services (YHHOS). Therefore, Gibson et al. (2020) stipulated that due to covid-19, YHHOS was faced with challenges such as low funding, low impact on service especially now that schools and churches were closed and limited communication camps. These communication camps were small, temporary camps that would allow staff of YHHOS stay with a family for a year or two in which they would be monitoring the speech-language impairment improvements. Therefore, Gibson et al. (2020) posited that having these camps had enabled adolescents to develop confidence and morale towards working on the language-based learning improvement. That notwithstanding, Gibson et al. (2020) concentrated on just one non-governmental organization and not government programs in the area that served the same purpose. This necessitated the need to investigate the various government programs initiated in Meru County as a way to boost awareness and early treatment of the language impairment on time.

Menge (2016) analyzed causes of learning disorders from school system, teaching method and curriculum perspective. The study admitted that sciences and mathematics were subjects that were most failed in Kenyan secondary schools. This failure resulted to excess fear of the subjects by students. Therefore, Menge (2016) pinpointed that the problem could be attributable to the schooling system, teaching approaches and curriculum in general. In curriculum, the study pointed out a mismatch of syllabus, poor attitude of teachers towards the subjects, difficulty of concepts and lack of teaching

resources whereby a teacher taught without writing anything on the board due to lack of adequate teaching and learning materials. However, Menge (2016) did not investigate the possibility of students' lack of interest and involvement in math as a causal factor.

A study by Ooko et al. (2019) explored the effect of development of reading aptitudes in Kenya primary schools. The study used Solomon four research designs on 229 pupils, 54 English subject teachers and 4 teachers in the guidance and counseling department in Changamwe sub-county. The study discovered that students, whose reading followed shaping behavior modification, improved their reading abilities proving effective. However, Ooko et al. (2019) noticed that the pupils who had reading aptitudes had a very low self-esteem and generally did not look happy as compared to other students. That notwithstanding, Ooko et al. (2019) missed out in including other grammar teachers such as Kiswahili teachers. Kiswahili is a national language in Kenya hence students should be assessed on their reading abilities in Swahili language. In addition, since the study was done in primary schools, the current study would advance further and investigate adolescents in secondary schools in Meru County.

#### **2.4.1 Summary of Language-Based Learning Disorder Gaps**

Language-based and learning disorders among the adolescents are a problem in very many nations. Studies by Dubois et al. (2020) and Michelle et al. (2019) pointed out that it was true that language-based learning impairments could cause depression. However, this conclusion was reached after collecting data from young adults of ages between 18-34 years hence creating a gap for this study to expound more on adolescents aged 12-18 years. Other studies like Hobson and Bird (2019), Nathaniel et al. (2020) and Pillay et al.

(2020) made efforts to explore various therapy solutions offered to ease language impairment. These therapies included standardized language and learning subtests, and subjective self- and teacher ratings of communication. Nevertheless, these therapies were discovered to be expensive especially for an adolescent who came from low and middle-income households hence creating a gap to assess the available therapeutic options to the adolescents whose households had a low income.

Further studies done on language and learning disorders strongly argued on both causal factors and diagnosis available. Studies such as Chung et al. (2020), Darweesh et al. (2020), Marinelli et al. (2020) and Niolaki et al. (2020) concentrated on what, why, and how students with language and learning disorders coped in school without exploring how other students without disorders were making life harder or simpler for them. This could be a key factor on whether students with language and learning disorder would fall into depression or not. This therefore gave the current study an opportunity to examine how the interaction between the language and learning disorders with the peer relations and support contributes to depression among adolescents in secondary schools.

Impairment of language among the adolescents has been a problem in very many nations. The studies reviewed have pointed out that a high number of adolescents who suffer from this cognitive problem tend to drop out of school due to speaking disorder, poor academic achievements, low employment and job retention rates, low-income rates, low financial management abilities, high teen pregnancies, humiliation and discrimination from peers. These issues are directly attributable to inability to speak fluently or write clearly. The render of last result of these young adults when they experience these challenges would be plunging into various types of depressogenic states and even suicides. In as much as

they try to access various help offered such as therapies, few qualified specialists and clarity of the therapy period faces these adolescents. Failure to undertake the required therapies at the right time or in the right manner contributes greatly to deterioration of the problem hence low-self-esteem, reduced interactions with peers and increased violence. There has been promotion of increased awareness of the situation but there is still low knowledge and lack of early tracing of children with speaking and language disorders for treatment. This is due to negative perception from the community members who have relatives suffering from language impairment as though having been be-witched.

## **2.5 Severe Disruption in Social Cognition and Vulnerability to Depression**

Social cognition is the ability to use one's mental abilities and skills in interactions with other people (Kernis, 2018). Interactions with people range from how we speak to them and our behavior and attitude towards them. When an adolescent is experiencing various severe disruption in social cognition, it ranges from poor judgement and decision-making, uncouth behavior, negative attitudes towards people, lack of collaborative reasoning, morality issues and negative thinking (Dubois et al., 2020). Dubois further contends that poor judgement occurs when an adolescent cannot process information around them to benefit their goals. They end up interpreting information negatively to a point that they lead to actions that are not acceptable to the community. Such behaviors could result to shunning by community hence resulting to creation of wrong attitudes towards its members. These adolescents may not be helped much since they avoid any collaborative reasoning, entertain wrong morals and always think negatively about everything.

A study by Tekin et al. (2020) compared how the quality of life among adolescents was influenced by social cognition deficits as the first stages of depression. The social cognition measures were things like the test on expressions made on faces of the adolescents and test on reading the mind in the eye test. The study approached the whole concept from the angle that there were studies done that suggested that depression has previously caused severe social cognition deficits. Nevertheless, there were few studies done to ascertain whether the problem affected adolescents or not. Therefore, Tekin et al. (2020) took into perspective of including thirty-five (35) adolescents that were clinically diagnosed as depressed and other thirty-seven (37) healthy adolescents who did not have depression. The two groups were observed after some specific duration of time. The main issue was to investigate whether the depressed adolescents led a less quality life compared to the non-depressed adolescents.

Results presented by Tekin et al. (2020) found out that when adolescents were in their first stages of depression, there were no significance changes in their social cognition. However, when depression advanced to the next stages, it became clear that there was a distinction between the depressed adolescents and the ones who were not depressed. They portrayed signs such as angry faces, sad faces, moody faces, sleepy and bored eyes. These signs were interpreted when depression took toll on the patient, since it was not immediately shown but with time and after keen observations, there was a notable difference. Nevertheless, Tekin et al. (2020) considered only two types of social cognition and failed to include others like reasoning or metacognition. There was therefore need to explore whether the two social cognitions would change as depression advanced with time.



According to Smith and Ryan (2020), there is a huge difference in understanding between single word and text reading among people. The study explores the relationship that exists between the comprehension of single word reading and text reading. Smith and Ryan (2020) gathered 13 people from Arizona to read silently and spell words. Later on, they were given a text to read silently and asked questions pertaining to the text details. It was gathered that the respondents understood the meaning of the words more when these words were placed in a text/sentence format like as compared to just one word. However, Smith and Ryan (2020) ascertained that there was no relationship between silent or loud reading and understanding ability of the words or texts. Smith and Ryan (2020) recommended that when a psychologist wants to assess reading disabilities, caution should be taken especially by ensuring that they provide texts as compared to words because it is proven that there are people who get a meaning of words when they are placed in a text format. By doing this, it would avoid misdiagnosis which tampers with the psychological status of the patient pushing them to depression unknowingly.

Gnaedinger et al. (2016) explored the relationship between reading strategy use and reading comprehension during the primary school years. Gnaedinger et al. (2016) used 70 pupils in class two to five to undertake read aloud test and a metacognitive questionnaire to quantify reading methods. Verbal reading eloquence and language projected reading understanding, as well as reading-specific suppleness. Precisely, feeble reading-specific flexibility aptitudes had negative relationship with loud reading method and understanding when reading, signifying that pupils with feeble suppleness aptitudes were less proficient at utilizing reading methods successfully. This resulted to victimization and mockery of these students by either their teachers or fellow students which led to

high cases of depression among these children. Gnaedinger et al. (2016) used only fictional narrative passages with one understanding level which were very easy especially for students in class seven as opposed with their counterparts in class eight. Therefore, the current study will use different passages on different adolescents based on their classes.

In addition, Knight and Baune (2019) conducted a study to determine the link that existed between social cognition abilities and psychosocial dysfunction. The study's data was collected from hundred and eleven (111) patients diagnosed with depression symptoms. The study examined thirty-six (36) male and seventy-five ((75) female patients. The patients had an average age of thirty-five (35) years. Among the study's respondents, ninety-three (93) were Caucasian, thirteen (13) were Asian and the rest five (5) were from other races. They were subjected to a test that involved their cognitive deficits and moods. According to Knight and Baune (2019), cognitive deficits and mood had no intervening influence on social cognition ability and psychosocial dysfunction. Therefore, the relationship between the two cannot be ascertained by noticing the mood of a person or their ability to use mental skills in interactions with other people. Knight and Baune (2019) did not include social cognition such as memory.

Further on, Förster et al. (2018) examined how social cognition deficits differed from executive function disorder in adolescents and the youth. The study revealed that it was very hard to differentiate between the two since they had almost similar symptoms. To rule out that thought, Förster et al. (2018) includes one hundred and seventy-nine (179) students who included hundred and eighteen (118) adolescents and youths who had depression and sixty-one (61) healthy control group of the same qualification. The

respondents were mainly of twenty-one (21) years of age with few of them less or more than 4 years. The study found out that there were no significant differences between social cognition deficits differed from executive function disorder.

Nevertheless, a point to note was that Förster et al. (2018) discovered that depressed adolescents had less cognitive flexibility which caused them to perform lowly in areas such as facial expressions, mind tasks and recognition such as recalling things. This was a serious issue since that meant that when adolescents get depressed, they actually fail to remember things and process current information which is part of executive functioning disorder. In terms of social cognition disorder, they portrayed it using facial expressions. Förster et al. (2018) did not provide information on the exact number of female and male adolescents and youths. Additionally, the study considered upper aged adolescents of 17 years and above failing to include the ones at low age from 12 years. A recent study reported that high self-esteem was not always healthy. An investigation by Kernis (2018) at the University of Georgia looked into 100 undergraduates to assess significant differences between students with “fragile” high self-esteem and students with “secure” high self-esteem. After determining their self-esteem levels through questionnaires and interviews, researchers found out that people with secure high self-esteem were able to accept their negative traits more easily and were less likely to be verbally defensive. In contrast, students with fragile high self-esteem were verbally defensive, reflecting mental problems such as depression and anxiety. This study revealed that there were different types of high self-esteem and sometimes high self-esteem may lead to depressive symptoms. The relationship between self-esteem and the development of depression had

not been studied yet; in particular, there had been no report on the effect of levels of self-esteem on depression.

### **2.5.1 Summary of Social Cognition Gaps**

In the social cognition variable, there was a contention on ascertaining whether high self-esteem could easily lead to depression or vice versa. Studies such as Kernis (2018) revealed that there were different types of self-esteem and sometimes high self-esteem could be a factor in depressive symptoms. Conversely, low self-esteem could also lead to depressive symptoms. The relationship between self-esteem and the development of depression has not been studied yet; in particular, there was no report on the effect of levels of self-esteem on depression. This was identified as a gap for the current study to examine the effect of self-esteem among adolescents and whether it could be a contributory factor to depression.

Math learning disorders are extreme cases whereby they cannot be attributed to environmental conditions or physical disorders. There have been numerous complaints by the studies done that the students face incomplete mastery of facts, computational weakness, challenges in transferring knowledge, making mathematical connections and poor understanding of mathematical problems. The causal attributes include memory, cognitive development and visual-spatial ability. The studies found out that average and poor academic students' disturbance, the sharp students' domination in lessons, discouraging statements during class-time can cause an increase in anxiety. However, when there are group discussions and positive advice, this reduces anxiety. Therefore, it is evident that mathematics is a subject that is most failed in Kenyan secondary schools.

This failure results to excess fear of the subject by students. Studies faults that the problem could be attributable to the schooling system, teaching approaches and curriculum is general. In curriculum the study complains of mismatch of syllabus, poor attitude of teachers towards math, difficulty of concepts, lack of teaching resources whereby a teacher teaches math without writing anything on the board due to lack of chalks and lack of textbooks for the students to read.

From the reviewed studies on writing disorder, it is established that children with this deficit have errors in shaping their letters as opposed to normal children. In addition, they pause more and produce fewer texts. Perfect awareness of the words is lower on children with phonological disorder as compared with their counter-parts. However, both groups exhibit omission of words but the group with phonological disorder get challenges in identifying words that sounds similar with the produced words. In addition, writing deficit that makes it hard for the children to spell, they also have poor handwriting and lack of organization of thoughts clearly when writing on a paper.

The studies reviewed on reading disabilities have come out clearly to indicate that when people are reading, making errors can affect their lives negatively bruise their self-esteem, increasing anxiety, peer mocking, and encouraging avoidance of reading behavior. It was also noted that pupils who have reading aptitudes have a very low self-esteem and generally do not look happy as compared to other students. It reaches to a point where suicide has been contemplated. For example, those suffering from brain injuries may request their close relatives or doctors to end their lives because their brains cannot perform basic functions such as reading, eating and sanitation. These problems have not only engulfed adults but majorly adolescents who are discovering new changes

in their body and going through many transitions. Therefore, caution and urgent help is needed to save these people from self-inflicted harm or even harming other people as a result of depression.

## **2.6 Support System, Cognitive Deficits and Vulnerability to Depression**

The effectiveness of various levels of support system among adolescents contributes towards ensuring that they live in peace and harmony amongst themselves. Adolescents interact with peers and other people at different capacities depending on their location. They could have classroom peers, parents' interactions, teachers' interactions, school managements' interactions, school-mates peers; neighborhood peers and opposite gender peers (Hammond, 2020). The support accorded by these different parties dictates a lot on the level of influence of cognitive deficits and depression.

Globally, studies have been done pertaining how depression was caused by strained peer relationships. An analysis by Dubois et al. (2020) considered how young adults in America were coping with poor language skills while putting emphasis on schooling, working, dating and independence. The study worked on secondary data in database from the year 2005 to 2018, fifteen articles and questionnaires to young adults of the age 18-34 years. Dubois et al. (2020) found that 61.5 percent had dropped out of school, had poor academic achievements, low employment and job retention rates, low-income rates, low financial management abilities, and high teen pregnancies. These issues were directly attributable to poor support from peer relations due to inability to speak fluently on what they wanted and how they wanted it achieved.

Thus, Dubois et al. (2020) confirmed that the most render of last result of these young adults when they experienced these challenges would be plunging into various types of depression and even suicides. Nevertheless, Dubois et al. (2020) did not investigate the young adults who were aged between 12-18 years which is the gap this study intended to plug by establishing the challenges that adolescents who experienced strained relationships and came from dysfunctional families faced in secondary schools in Kenya.

Further on, Girolamo et al. (2020) studied language aptitudes in adolescents and youths living with speech and peer interaction disorders. The study used 10 participants aged 14-21 years to undertake early grammatical impairment test. In relation to this, Girolamo et al. (2020) found out that there were major improvements on the tests done by adolescents and youths put in a small sized class with other adolescents with similar disorders and with special education resources. This meant that the number of pupils in a class and special attention/support given to adolescents experiencing difficulties caused by depressive symptoms led to an improvement in their condition. This revelation revealed a need to find out some of the special resources and ways in which teachers were paying attention in order to help adolescents experiencing strained relationships and dysfunctional support system.

In Spain, Jerrim et al. (2021) explored how the structures put into place by secondary schools of repetition of classes affected the age of students and eventually their dropping rates. The study revealed that in Spain, only 70% of the students were able to complete a grade without repetition. The other 30% were forced to repeat classes which caused them to study with much younger students than them hence opting to dropping from school due to lack of social support causing them to be depressed. The study further discovered that

particularly boys got enrolled in school at a very late stage compared to girls. As a result, when forced to repeat classes, they eventually outgrew their ages hence making them feel out of place since their peers were no longer with them in the same class. Jerrim et al. (2021) therefore advised that there should be policies that are flexible on when a child is supposed to be enrolled in school so that by the time they come to secondary schools, their age matches their respective classes/grades.

In Belgium, Nouwen and Clycq (2019) examined how social support was jeopardized when students dropped from school in urban areas. The study collected information from 1401 students, 254 parents and 115 teachers around Belgium secondary schools sampled using simple random sampling method. Nouwen and Clycq (2019) found that the presence of teachers, parents and peer support affected the retainment of students in schools. Nevertheless, when they dropped out of school, teacher support stopped significantly while peer and parental support declined to some extent. This therefore made school drop-outs to look for new friends so as to be accepted since the relationship between their old friends and then got strained. Nouwen and Clycq (2019) did not evaluate what support measures government was making to ensure all school going children remained in school without any dropping due to one reason or another.

In the nation of Basque, Lasarte et al. (2020) evaluated the purpose that social support played in adapting to secondary schools. The study engaged 1468 students (which included 49% boys) who were adolescents of ages 12-17. The study assessed teachers, family, and peers vis-à-vis expected performance. Lasarte et al. (2020) found out that support from teachers, followed by family had a positive influence in enabling students adapt quickly to school's program while peer influence did not have any impact. Lasarte



et al. (2020) concentrated on public secondary schools and hence failed to include private secondary schools in the study.

According to a report by National Foundation for Educational Research (NFER, 2020), school students have been facing various social support challenges emanating from covid-19 pandemic. The study revealed that parental safety concerns due to covid-19 infection restricted students from going to school. Further, peer relations between students and their friends have been strained since they had not been able to meet in person for almost a year and half due to government action to close schools indefinitely. Teachers were also not able to physically interact with students but do so using technology which has eliminated any personal relations that could have existed before. This has made students feel that their teachers are strangers to them since they are emotionally disconnected.

Regionally, Harrison et al. (2021) examined the mental health challenges adolescents faced when coping with stress and their mental strengths in South Africa. The study revealed that adolescents in South Africa faced various eco-social challenges that pushed them towards being stressed. According to Harrison et al. (2021), there was a tendency to forgetfulness among the adolescents which was on the rise hence raising concerns. However, social support from their acquaintances and their teachers, high self-esteem and pliability contributed a lot towards stable mental health. Therefore, Harrison et al. (2021) recommended that there should be more intervention strategies to reduce lack and poverty induced mental distress. Hammond (2020) documented the depression repercussions related to peer relationships on being isolated due to covid-19 time. The study stated that when covid-19 pandemic struck the world, many countries decided to

limit movement of people with some working from home or attending online classes. This led to isolation of people from their normal lives of interactions with each other.

Therefore, Hammond (2020) underpinned that there has been low performance among adolescents on normal routine activities due to long-time isolation without sharing of ideas with peers. This was whereby adolescents started experiencing mild depression symptoms due to forgetting basic things such as calling in for covid-19 updates, replying emails, and attending online classes. Therefore, Hammond (2020) gathered that lack of interactions of people could affect the mental health of a person causing loss of memory hence leading to depression.

In Tanzania, Philimini and Mkulu (2020) assessed what motivated students in Rorya district secondary schools to remain in school. The study borrowed a lot from Maslow's Hierarchy of needs. The nature of research design was mixed and hence aided in collection of 126 sample size of respondents using diverse sampling methods. These respondents answered the questionnaires, participated in interviews and there were documents analysis. Philimini and Mkulu (2020) found that motivation was a key factor in retaining students in schools. Nevertheless, there were gaps emanating from teachers not being actively involved in motivating students particularly the ones with cognitive deficits. That is, there was very little established relationship between teachers and students outside classrooms. Additionally, parents' involvement in student's academic life was found missing. That is, many parents did not pay much attention to what was happening in school since they really felt that teachers should take the responsibility and should not be bothered to know whether their children had sound cognitive abilities or not.

In Kenya, Imbosa et al. (2022) explored the measures public secondary schools in Vihiga sub-county put into place to ensure that pregnant students remained in school or were re-admitted after giving birth. Purposive sampling method was used to select ten head of secondary schools, ten teachers responsible for guidance and counseling, one officer in the ministry of education in charge of children and fifty students. The study established that there were inadequate policy documents in the county for school management to read, understand and implement and no re-admission policy which was documented by the ministry of education.

This therefore left the school management to decide on case-by-case basis, which student should be allowed back or not. Therefore, if the senior management had not cultivated support culture of the school students, the re-entry became a problem. Imbosa et al. (2022) used two public secondary schools as units of analysis to conduct pre-test study. The choice of two public secondary schools from the same location that the study was being conducted from, limited the number of secondary schools that could be used for the main study. That is, it would have been better if Imbosa et al. (2022) used public secondary schools in another location which possessed similar characteristics as the main study's location. Additionally, the study did not explore the boys' students.

Abuya et al. (2019) examined how the composition of a family dictates the attainment of education among children in Nairobi's slums. The study which was conducted in Korogocho and Viwandani slums also used Enterprise resource planning reports as complimentary secondary data. Abuya et al. (2019) was interested in ascertaining whether children living with parents, single parents, guardian, or simply not living with a parent/guardian, had any issues in schooling. The study found out that students who lived

with a single parent or a guardian were more deemed to drop from school as compared to the children who's both parents were present in their lives and were in functional families.

However, an interesting finding by Abuya et al. (2019) indicated that the children who lived without parents/ guardian were more likely to stay in school rather than drop out. The explanation provided for this specific finding was that orphaned children were likely to receive more support from the community compared to the ones with parents. However, Abuya et al. (2019) categorized children who have been rented a house near school as children living without a parent/guardian. This was misleading since what really mattered was the presence of a parent/guardian in a child's life through provision of basic needs such as food, shelter, clothing, school fees and moral support and at the same time observing their cognitive abilities. These types of children cannot be included as children without parents/guardians

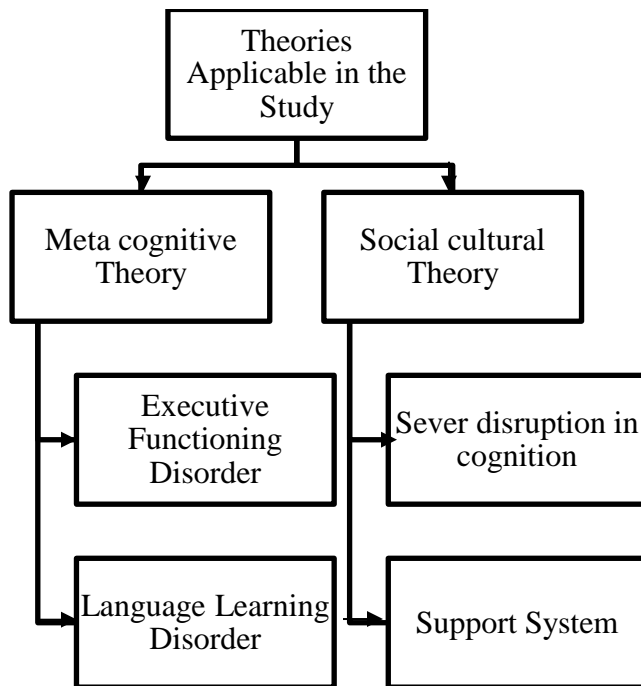
Munyalo (2020) investigated the factors that influenced North Horr sub-county primary schools' retention of pupils, particularly on socio-cultural aspects. Five primary schools were selected as the target population. The study collected data from head teachers and teachers through interview and questionnaires methods. Munyalo (2020) discovered that socio-cultural aspects like nomadism, early marriages and negative perception on education matters among the community led to high drop-out cases. Therefore, by building more boarding schools, Munyalo (2020) ascertained that this problem of high drop-out cases would decline. The study was conducted on primary schools while the current study will concentrate on secondary schools.

## 2.7 Theoretical Framework

This study was anchored on two theories; these were the meta-cognitive theory which guided the executive functioning disorders and language and learning disorder variables and social cultural theory which guided severe disruption in social cognition and the support system variables in the study.

**Figure 2.1**

*Theoretical framework*



Source: Researcher 2022

### **2.7.1 Meta-cognitive Theory (MCT)**

Meta-cognitive Theory (MCT) is a theoretical approach that was first developed by Flavell in 1979. MCT postulates that human beings have their own capabilities to use numerous cognitive skills when undertaking various tasks ahead of them. This means that people easily control their thought processes so as to fit perfectly well with the roles they intend to perform. MCT guided the executive functioning disorders as well as language-based learning disorder variables in the study. Controlling the thoughts borrowed a lot from experiences, knowledge, objectives and approaches that a person possesses.

Monitoring of one's thinking is affected by past experiences towards interaction with specific events, a thing or someone. The kind of knowledge one possesses enables them to use this information towards implementing their thoughts in a careful and concise manner. The goals/objectives a person intended to achieve could cause them to think and act in a way that promoted them towards attaining their goals. Lastly, the kind of approaches that a person intends to use in an event greatly affects their thinking to replicate them in deeds. Therefore, these four meta-cognitive precepts basically direct the nature and the course of thinking and processing of information.

Meta-cognitive theory was adopted in this study since as adolescents develop; they need to be knowledgeable through studying and life experiences. This enables them to set innumerable objectives to achieve through various approaches that were fit to them. For example, when adolescents were able to read and write fluently, they were able to recall and process this information during the examination time. However, for them to be able to complete the examination over the stipulated time, they would need to manage time

and be organized when writing answers. In terms of answers, the memory part contributed a lot towards ensuring that they gave correct answers during the examination and apply the knowledge generated through learning in life. Additionally, when an adolescent was for instance disciplined by a parent, teacher or guardian, this discipline helped them shape their morals since at first; they associated pain with bad behavior.

Just remembering the pain, they ever experienced when being disciplined, they were able to process this information and do all the chores on time, be organized and pay keen attention to details. Later on, in their life and careers, adolescents intentionally multitask in managing their jobs and family lives. This was because they had advanced in time management and was able to control their emotions and were able to keep home issues at home and work issues at work.

Therefore, meta-cognitive theory cut across every area of a person irrespective of which stage they were in life. Adolescents were able to always be motivated towards various areas in their lives since they were more aware of their thinking and choices. This theory was used before by Allen and Armour-Thomas (1991) and Noushad (2008) to understand various life and developmental tasks among adolescents. Nevertheless, MCT was criticized by Norman (2020) that in case a person had negative experiences, insufficient knowledge, lack of precise objectives and impractical strategies in life, the level of output was greatly hindered. This was because, when a person did not think they could do something, it became very difficult to actually achieve the intended goals.

### **2.7.2 Social Cultural Theory (SCT)**

Social Cultural Theory (SCT) was advanced by Vygotsky (1978). The theory states that a person's development is entirely anchored on various interactions they have with people. That is, the capacity of interactions directly influences people and their development. SCT guided the severe disruption in social cognition and the support system variables since the first theory did not address them. SCT indicates that when adolescents are growing, they have ability to develop their mental capacities into a higher level; this is greatly attributed to the exposure that adults provide to them. Adults have the mandate to always challenge and support adolescents to think and grow. The tasks given to the adolescents enable their minds to expand and provide solutions to various issues (Vygotsky, 1978). Adding to that, languages were developed cohesively when knowledgeable adults interacted with adolescents.

Social cultural theory was used to help understand the impact of social interactions among adolescents which shape behavior, morality, thinking, and collective reasoning skills. When an adolescent was able to interact in a healthy manner, they learnt a lot on behaviors that were not socially acceptable, morality is in line with cultural norms and positive thinking in various scenarios in life. An adolescent could learn how to courteously express themselves when they required something. These attributes when supported by various groups such as peers, parents, teachers and the government policies, enabled the adolescent to develop their mental capabilities. The more an adolescent interacted with various people, the more they tended to learn and grow. Development was considered present when an adolescent could be able to replicate and practice the learnt



behaviors and morality without necessarily the presence of the adult. For example, when the adolescent could not behave well without the presence of a teacher, then mental development did not take place. When an adolescent made sound judgements and decisions on a particular issue that they have been previously exposed to, then development indeed had taken place.

### **2.7.3 Summary of Theories**

On the part of the Meta-cognitive Theory (MCT), it was established that when a person had negative experiences, insufficient knowledge, lack of precise objectives and impractical strategies, the level of output was greatly hindered. This was because, when a person did not think that they could do something, it became very difficult to actually achieve the intended goals. The Social Cultural Theory (SCT) had a gap on impracticality. That is, there was no clear way to scientifically test cognitive development caused by social interactions.

## **2.8 Conceptual Framework**

The conceptual framework is a model or pictorial representation that shows how the variables in a study are related with each other (Adom et al., 2018). The variables of the study are explained on section 2.8.1 to 2.8.5.

### **2.8.1 Vulnerability to Depression**

In this study the dependent variable was vulnerability depression. Vulnerability to depression variable had various sub-variables which included low academic performance, adolescent pregnancies, absenteeism, low self-esteem, loneliness, withdrawal and school drop-out (Livingstone et al., 2017; Magidson et al., 2017). Low academic performance

was portrayed when a student was not able to attain the minimum pass mark. This kind of performance is achieved due to various reasons such as when a student does not sit for all examinations, or fails to answer all questions or fails to get correct answers on the answered questions. Adolescent pregnancies are instances where female adolescents engage in premarital sexual intercourse hence ending up becoming teenage mothers. Absenteeism occurs when an adolescent either fails to attend classes or go to school for some period of time.

The reason of failing to go to school or attending classes is normally due to voluntary or involuntary reasons. Low self-esteem is a situation where adolescents generally feel discouraged and lack interest in anything. Mostly, this is portrayed through sadness but recently low self-esteem has been also noticed by people who have previously been looking so happy. On the other hand, loneliness is a feeling that people do not want to be associated with you as a person and that you feel isolated most of the time. In this case, an adolescent may be surrounded by friends, teachers, parents and the community but feel not wanted. This is because someone may have previously rejected them or chased them away from their midst or they may be experiencing depressive episodes. Withdrawal is when someone feels that they do not want to interact with anyone nor do they want anything to do with other people. When they isolate themselves and stay on their own, it may be a sign that they are battling depression.

It is a dangerous trait which could easily cause an adolescent to harm themselves or others in the process of withdrawal. The adolescents may feel vengeful since they feel offended hence withdrawing themselves from people. School drop-out is the process of

completely failing to go to school when one is supposed to. The adolescent at this stage has already made a decision to stop going to school due to a myriad of factors.

### **2.8.2 Executive Function Disorder**

The independent variables were executive function disorders, language-based learning disorders and severe disruption in social cognition (Mammarella et al., 2018; McWhirter et al., 2020). In the first variable which was executive functioning disorders in this study, it had variable indicators such as multitasking, time management, memory, emotional control, organizational skills, processing information and paying attention (Milanini et al., 2020; Menge, 2016; Meyer & Ndeti, 2016). Multitasking is the capacity to handle more than one activity. In relation to adolescent in secondary schools, they need to be able to multitask various activities such as study more than eight subjects which require special skills of ensuring that all subjects are studied and passed. Time management involves doing the right thing at the stipulated duration and being able to maximally allocate time to various tasks for the day.

For example, on the one hand, when an adolescent is required to study, he or she should be in class or the library and not in the dining hall. On the other hand, when the same adolescent is required to be attending school assembly, they should not be in the dormitory sleeping. Memory is ability to recall things that were taught or needed to be recalled. In a secondary school, recalling past activities such as what teachers taught is essential towards passing of examinations and excelling in school. Failure to excel leads to self-doubt and low opinion about self. Additionally, recalling the school policies, rules and procedures is essential in ensuring that one does not violate any of them. Emotional

control is the process of keeping in check one's feelings so that they do not result to actions that could cause damage or hurt someone else. Organizational skills are the aptitudes that are necessarily needed to plan resources to achieve maximum benefits. Processing information is the ability of synthesizing data to make informed decisions on academic, co-curricular and general relationships issues. Paying attention is the ability to concentrate in learning to reap maximum benefit from the learning process.

### **2.8.3 Language-based Learning Disorders**

Under the second variable which was language-based learning disorder in this study, it had variable indicators such as receptive language disorder, expressive language disorder, speech disorder, language delay, communication and comprehension disorder (aphasia) reading (dyslexia), writing (dysgraphia), arithmetic disorder (dyscalculia) and Gerstman syndrome (Nathaniel et al., 2020; Niolaki et al., 2020; Onger et al., 2018; Pile et al., 2020). Receptive language disorder is the inability of someone to comprehend both written and spoken language (Chung et al., 2020). Expressive language disorder is the inability of a person to speak fluently but they comprehend the language (Lein et al., 2020). Anomic disorder is the inability to recognize and name things when speaking and writing (Schwartz et al., 2018). Speech disorder is a condition caused by Alzheimer's disease and which causes a person to speak slowly and impaired language (Nathaniel et al., 2020).

### **2.8.4 Severe Disruption in Social Cognition**

The third variable in the study which was severe disruption in social cognition had variable indicators such as judgement and decision-making, behavior, attitudes towards

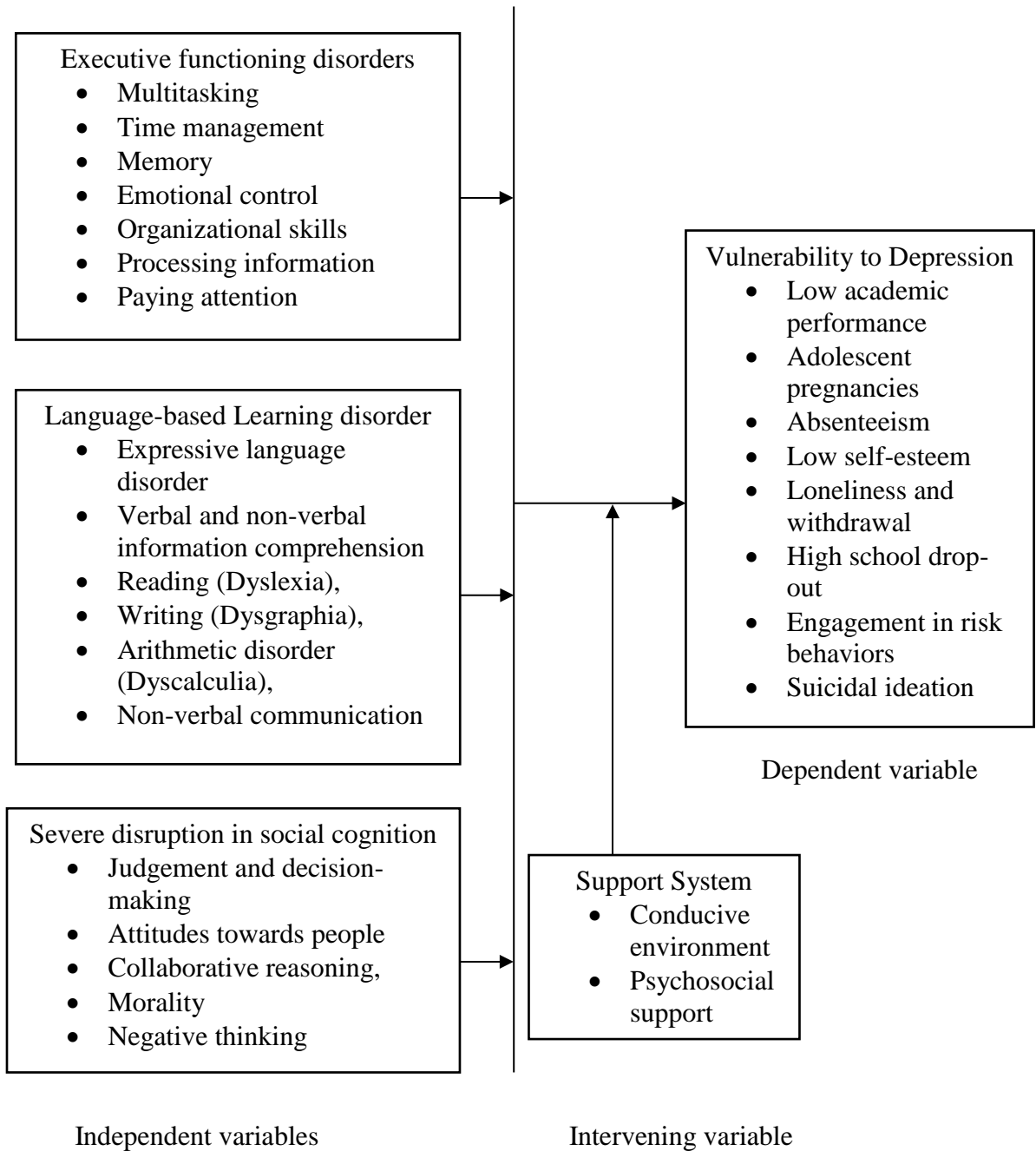
people, collaborative reasoning, morality and negative thinking (Politimou et al., 2019; Shawky et al., 2020). Judgment and decision making is the ability to effectively make sound choices that have more positive attributes rather than negative attributes. Behavior is the conduct that one has and that which could lead one to greater opportunity or consequences. Attitude towards people is the general perception that an adolescent has towards other parties. Collaborative reasoning is the ability of an adolescent to involve others and think from one perspective. Morality entails the ethics that an adolescent has which guides them into doing well and bad. Negative thinking is the ability of an adolescent to reason in a way that is harmful not only to them but also to parties interacting with them.

### **2.8.5 Support System**

The study had an intervening variable which was the support system. It had variable indicators such as environmental factors and psychosocial support (Termine et al., 2018). Figure 2.1 shows the conceptual framework of the study as explained above. The environmental factors were elements that relied on the surrounding that the adolescent grew up in. These may include natural and non-natural elements. Psychosocial support includes people surrounding an adolescent. They may include fellow students, teachers, parents, community, church, and government. These categories of people provide various psychosocial needs that adolescents require for adequate mental growth, social and emotional growth. The study's conceptual framework is indicated as Figure 2.2 which shows the effect of cognitive deficits on vulnerability to depression among adolescents.

Figure 2.2

*Conceptual framework*



Source: Researcher 2022

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter outlined the methodology that was used in the study. It focuses on the paradigm used, location, research design, target population, sampling technique and sample size, instruments that were used, reliability measure and validity. The chapter further, elucidates the data collection procedures, analysis and ethical considerations.

#### **3.2 Research Paradigm**

A study's paradigm replicates the method used when steering an investigation (Mwangi, 2014). That is, it allows partiality to be used when noticeable common certainties in the investigation are revealed and the inference of which could be law-like overview similar to those formed by ordinary research investigation. In this study, pragmatism paradigm was used. This, it is a type of paradigm that uses practical and logical solution when dealing with a problem (Mwangi, 2014).

That is the practical solutions that could be offered apart from just relying primarily on reasoning when a problem is at hand. In the case of the current study, it would be practical to offer practical solutions on how cognitive deficits that lead to depression could be minimized. This would entail incorporating students' relationships as well as the student and teachers' so as to have realistic feeling on what exactly was the problem, how far the problem goes and the practical solutions available.

### **3.3 Research Design**

A research design is a plan of the group situations and data analysis to syndicate their connection with the purpose of the study so as to be measured (Sileyew, 2019). The researcher used descriptive survey design to collect quantitative and qualitative data. Descriptive statistics enabled the researcher to collect data without influencing the normal operation of the respondents. In addition, it permitted the study of relationships between compared variables and reporting the characteristics and values as they appeared (Sharma, 2019). It therefore gave a prospect to gather evocative information that entailed the measurement of variables as they naturally occurred.

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

The location of the study is the area in which data is collected from during the research process (Shorten & Smith, 2017). The study was conducted in 389 secondary schools located in Meru County (Meru County Directorate of Education [MCDE], 2020). Meru County has both private and public secondary schools stratified as either boys, girls or mixed day secondary schools. Further in Meru County, a report by National Council for Population and Development (NCPD, 2017) revealed that it was one of the regions in Kenya where there were high depression rates triggered by various factors which included poverty, illness such as diabetes, cancer, drugs and substance abuse and poor mental health among adolescents. Gikonyo et al. (2017) and Meyer and Ndeti (2016) shared the same sentiments that indeed there was a surge in depression cases due to cognitive deficits especially among young people in Kenya.



### **3.5 Target Population**

A target population describes the unit of analysis that is used in the study to underpin the research objectives (Mohajan, 2018). The target population in this study were 389 secondary schools whose respondents were 389 principals/deputy, 1415 English teachers, 566 Guidance and Counseling teachers, 849 Mathematics teachers and 311, 200 students in the secondary schools in Meru County (Meru County Directorate of Education [MCDE], 2020). A principal/deputy principal was any person who was in-command as the principal of the school and in charge of the secondary school's discipline as at the data collection period. They were key in providing information pertaining to how students' cognitive deficits influenced their vulnerability to depression such as executive functioning disorders, language- based learning disorders and severe disruption in social cognition.

English teachers were key in the study since they provided information pertaining to the prevalence of students with reading disorders, writing disorders and impaired language in schools. According to MOE (2019), there were 1415 English language teachers in Meru County at the time of this study. A counseling teacher was important in the study because they provided information on the availability, capacity and utilization of counselling services in the school. According to MOE (2019), there were 566 Guidance and Counselling teachers in Meru County. Mathematics teachers were important in this study since they were better positioned to provide information pertaining to challenge of cognitive deficits such as Mathematic learning disorders noted within the school and the programs in place to mitigate the same. According to MOE (2019), there were 849 Mathematics teachers in secondary schools in Meru County. A report by ministry of

education (MOE, 2016) stipulated that the 311,200 students in secondary schools in Meru County fall between the ages of 12 to 19 years old. Therefore, this study adopted an adolescent age group to be between 12 to 19 years old.

### **3.6 Sampling Technique**

A sampling technique is the method through which a representative population is taken from the target population (Mohajan, 2018). The study used proportionate stratified sampling method to group the 389 schools which was stratified as boys, girls and mixed day secondary schools in each of the nine sub-counties in Meru County. Proportionate sampling method is a method used to sample a sample stratum that is relative to the population strata (Mohajan, 2018). This ensured that data was collected evenly across the entire population. That is, the nine sub-counties had equal number of 3 secondary schools selected using stratified sampling method to act as sample of the entire secondary school population in Meru County. The strata were evenly grouped according to the 9 sub-counties. These schools were stratified into boys' boarding secondary schools, girls boarding secondary schools and mixed day secondary schools in the nine Meru-County sub-counties.

Purposive sampling was used to sample at most one principal/deputy principal and one counseling teacher in each of the 27 secondary schools. The sample sizes of other various respondents such as 849 Mathematics teachers, 1415 English language teachers, 566 Counselling teachers and students of this study were determined using a statistical method as illustrated below (Kothari, 2004). Kothari (2004) developed a formular that was used to determine sample sizes of large population. The formular is as indicated below:

$$n = \frac{Z^2 pqN}{e^2 (N-1) + Z^2 pq}$$

Where:

n = Sample size for a finite group

N= number of mathematics teachers, English language teachers, guidance and counseling teachers,

p = Reliability of the population (or approximate frequency for a sample size n), where p is 0.5 for all respondents

p + q= 1 e: The margin of error considered for this analysis is 10 per cent. Z  $\alpha/2$ : normal reduced variable with significance z of 0.05 is 1.96

The sample size for all categories of respondents is similar to the specification above and is as shown below:

'N' of Mathematics teachers =

$$\frac{(1.96)^2 \times 0.5 \times 0.5 \times 849}{(0.1)^2 (849 - 1) + [(1.96)^2 \times 0.5 \times 0.5]}$$

= 86 Mathematics teachers

'N' of English language teachers =

$$\frac{(1.96)^2 \times 0.5 \times 0.5 \times 1415}{(0.1)^2 (1415 - 1) + [(1.96)^2 \times 0.5 \times 0.5]}$$

= 90 English language teachers

'N' of students =

$$\frac{(1.96)^2 \times 0.5 \times 0.5 \times 311,200}{(0.1)^2 (169800 - 1) + [(1.96)^2 \times 0.5 \times 0.5]}$$

= 297 students

An estimated sample size of 297 students took the Montreal Cognitive Assessment Tool (MoCA) (see appendix v) to assess the types and degree of cognitive deficits among them. The 297-student sample was distributed equally through proportionate stratified sampling method to all 27 schools whereby each school had 11 students sampled using simple random method undertaking the MoCA test. Additionally, Meru County had nine sub-counties which are Buuri, Igembe North, Igembe South, Igembe Central, Imenti North, Imenti Central, Imenti South, Tigania East and Tigania West (Meru County government, 2021). Therefore, the study first grouped the 27 schools according to nine clusters which were the 9 sub-counties (MOE, 2021).

Table 3.1 gives the sample size of the study on the distribution of various respondents in different secondary schools in Meru County who were sampled using simple random method in each school.

**Table 3.1***Sample size*

Sampled secondary schools in Meru County	Principal/ deputy Principal	Math teachers	English teachers	Guidance & Counselling teachers	Total
<b>1. BUURI</b>					
Ruiru Girls Sec Sch	1	3	2	1	7
Michogomone Mixed Day Sec Sch	1	3	3	1	8
Kiirua Boys Sec Sch	1	3	2	1	7
<b>2. IGEMBE CENTRAL</b>					
Njia Boys Sec Sch	1	2	4	1	8
Kangeta Girls Sec Sch	1	3	4	1	9
Matirine Mixed Day	1	1	2	1	5
<b>3. IGEMBE SOUTH</b>					
Igembe Boys Sec Sch	1	4	4	1	10
Maua Girls Sec Sch	1	3	3	1	8
Karumaru Mixed Day	1	2	1	1	5
<b>4. IMENTI NORTH</b>					
Meru School	1	5	6	1	13
Kaaga Girls	1	4	5	1	11
Kaaga Boys	1	3	4	1	9
<b>5. IMENTI SOUTH</b>					
Nkubu Boys High Sch	1	5	5	1	12
Nkuene Girls Sec Sch	1	3	3	1	8
Ntharene Mixed Day	1	2	2	1	6
<b>6. IGEMBE NORTH</b>					
Akirang'onde Boys	1	4	3	1	9
Ntunene Girls Sec Sch	1	3	4	1	9
Nkanda Mixed Day	1	3	2	1	7
<b>7. TIGANIA WEST</b>					
Akithi Girls Sec Sch	1	4	4	1	10
St. Luke Boys Sec Sch	1	3	3	1	8
Kunene Mixed Day Sec	1	3	3	1	8
<b>8. TIGANIA EAST</b>					
St Cyprian Boys Sec Sch	1	3	4	1	9
Nyambene Girls	1	3	3	1	8
Muthara Mixed Day	1	4	3	1	9
<b>9. IMENTI CENTRAL</b>					
Kirigara Girls Sec Sch	1	4	4	1	10
Abothuguchi Boys'	1	3	4	1	9
Kimana Mixed Day	1	3	3	1	8
<b>Total</b>	<b>27</b>	<b>86</b>	<b>90</b>	<b>27</b>	<b>230</b>

### **3.7 Data Collection Instruments**

Data was collected from the twenty-seven secondary schools in Meru County through the use of interview guide, questionnaire, depression assessment tool and Montreal Cognitive Assessment tool (MoCA). The principals/deputy principals and HOD counseling teachers were interviewed (appendix III). This was because the responsibility that they had towards management of discipline which was a direct attributing factor to depression among students was quite different from other teachers. Other respondents such as Mathematics teachers and English language teachers answered the study questionnaires (appendix IV). Students were assessed through depression and Montreal cognitive assessment tools (appendix V). Interview guides and questionnaires were used since they have been recommended by studies such as Mugenda and Mugenda (2003) as appropriate tools when collecting both quantitative and qualitative data.

#### **3.7.1 Interview Guide**

Interview guides were used to interview the principals/deputy principals and guidance and counseling teachers. This was because of their unique role in the causes and consequences of cognitive deficits among students. The interview guide was categorized into various segments such as background, executive functioning, language-based learning disorders, severe disruption in social cognition, support system and vulnerability to depression. Appendix III shows the interview guide that was uniformly applied on respondents.

#### **3.7.2 Questionnaire**

A questionnaire is a series of printed or written queries, designed for the purpose of a survey or statistical analysis, with a choice of responses (Sileyew, 2019). Mathematics

and English language teachers responded to the questionnaires. Implementation of self-administered questionnaire which had close-ended questions was used to gather data in this study as indicated in appendix IV. It had five responses such as: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree and 5 = strongly agree. The close ended questions engaged 5 points tabular Likert scale questionnaire. Multiple choice questions in the questionnaire directed respondents on how to reply to the questions relating to executive functioning disorders, language-based learning disorders, severe disruption in social cognition, support system, and vulnerability to depression among adolescents in secondary schools in Meru County. Appendix IV showed the questionnaires that were uniformly applied on specific respondents.

### **3.7.3 Depression Assessment Tool**

Students answered and gave their feedback on various depression indicators as shown in appendix V. This enabled the researcher to test their depressive status as far as the purpose of this study was concerned. This tool was most preferred since it revealed various causes of depression among adolescents as well as the extent to which they were affected.

### **3.7.4 Montreal Cognitive Assessment Tool**

The study also employed Montreal Cognitive Assessment Tool [MoCA] when collecting data from students. MoCA is developed as a rapid screening instrument for mild cognitive dysfunction. It assesses different cognitive domains such as attention and concentration, executive functions, memory, language, vasoconstriction skills, conceptual thinking, calculations, and orientation. Time to administer MoCA was approximately 20

minutes. The total possible score was 30 points; a score of 26 or above was considered normal. Appendix VIII indicates the Montreal cognitive assessment tool that was utilized in this study.

### **3.8 Pre-testing of Research Instruments**

It was vital to pre-test the data collection instruments beforehand to ascertain their validity and reliability in the in study (Bolarinwa, 2015). Pre-testing was done at the following secondary schools in Tharaka Nithi County; Ikuu girls' secondary school, Chuka boys' high school and Ndagani mixed day secondary school. This was because these secondary schools had guidance and counseling departments and shared many common features with the locale of the study such as high cases of cognitive deficits among the students (Mutua, 2019). Additionally, the students in the three pre-test secondary schools had experienced many indiscipline cases which are signs that depression was very much present in the school (Mutua, 2019).

According to Mugenda (2008), pre-testing study population should be 10 percent of the sampled size of the main study. These were 3 deputy principals and 3 guidance and counseling teachers who were interviewed while 9 mathematics teachers, 9 English language teachers, and 10 students were selected using simple random sampling method. The pretested instruments were the same for the actual study. Therefore, the study used depression assessment tool and MoCA tool on students while other respondents answered the pre-test questionnaires and interviews. The sole purpose of doing this was to rearticulate queries that the nominated respondents did not comprehend thereby ensuring unflinching data collection tools during the main study.



### **3.8.1 Reliability**

Reliability is the trustworthy aptitude of an investigation instrument's outcomes when applied at a population (Taherdoost, 2016). It guarantees that the outcomes continue being unswerving when used again. To make sure that the questionnaire was dependable at all times when applied to a similar situation, the study had a pre-test as defined in section 3.8. The study used test-retest type of reliability. It was measured using Cronbach alpha coefficient test. Cronbach alpha coefficient was used in defining the steadfastness of the instruments as directed by Taber (2018). The reply frequency should have a least Cronbach alpha constant frequency of 0.7 or above which expressed high steadfastness in research (Taber, 2018).

### **3.8.2 Validity**

When data collection instrument performs its intended purpose effectively and reliably, it is referred to as validity (Ko et al., 2017). Diverse independent and dependent variables as covered in chapter two of this study formed the foundation for the questionnaire's validity. Types of validity such as content, criterion, face and construct validity were observed throughout the study (Ko et al., 2017). Content validity was observed by making sure that questions inquired were relatable to cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County (Ko et al., 2017). The past studies facilitated to ensure that both the questionnaires and interview guide achieved their purpose.

Criterion validity guided to test how well to do with the outcome of the study measure of the influence of cognitive deficits on vulnerability to depression among adolescents in

secondary schools in Meru County (Ko et al., 2017). This was observed when there was comparison of the pre-tests results with various similar studies that had ever dwelt on the variables of the current study. To achieve that, this study heavily consulted the already reviewed literature to identify the studies that ever talked about the main constraints of the study. The questionnaires used maintained face validity by guaranteeing that there were inquiries linked to cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County (Ko et al., 2017). Construct validity was also included so as to ensure that the tools used conformed to the constructs under study which were cognitive deficits and depression.

### **3.9 Data Collection Procedure**

To carry out this study the first thing was to obtain an introductory letter from Kenya Methodist University. This was done by first presenting the proposed study to a panel who gave various recommendations on how to improve the study. After the researcher did all the corrections, the directorate of postgraduate studies issued an introductory letter. Thereafter, since the study was examining mental health issues on human beings, it underwent thorough examination by the university the ethical committee. The committee examined the work and gave clearance based on several conditions that were to be observed during the data collection process. The two letters were used in the application for a research permit from National Commission for Science, Technology and Innovation (NACOSTI) as required by the national research council of Kenya (appendix VI, VII and VIII).

Four research assistants were recruited and trained in preparation for the administration of the questionnaires and the depression assessment tools. The research assistants were

equipped with the background knowledge in psychology. They were later exposed and trained on various aspects such as presentation, confidence and explanation skills. The research assistants were 2 Master of psychology students, 1 clinical Medicine student and 1 psychology undergraduate student. All these were trained on the research issues and the data collection process. They collected the data in the company and supervision of the researcher.

Once the research permit was issued, the researcher then proceeded to the ministry of education and county commissioners for authorization to conduct the study in schools (see appendix I). Additionally, the study also sought authorization from the school management on data collection. The researcher first visited all the sampled schools together with the research assistants and introduced them as well as introducing the purpose of the study to the school administration. They introduced themselves and requested to be allowed to collect data from various respondents such as the deputy principal and guidance and counseling teachers who were interviewed as indicated in appendix III.

Later, the researcher and assistants requested to be introduced to the mathematics teachers and English language teachers. Once these other respondents were identified, the researcher introduced themselves and elucidated the purpose of the study and where it would be applied. All these were elaborated further through a respondent introductory letter as shown in appendix VI. The researcher and assistants then issued the questionnaire as indicated in appendix IV and there after informed the respondents to fill in the questionnaire.

Further, sessions were held with students so as to assess their levels of cognitive deficits using MoCA (see appendix V). This involved inviting students in the selected schools to learn about cognitive deficits in an open forum such as during the assembly/seminar presentation for all the selected schools. After the initial assembly/presentation, students were invited for an assessment to ascertain any cases of CDs. This was done during their normal break times so as not to interfere with the school's normal operations. This was again a general invite to all those who were willing to know their status as far as CDs were concerned.

The study administered MoCA test by making a brief presentation to all students during the assembly or at an appropriate time agreed with the school administration. The aim of the presentation was to help the participants to understand what CDs were, who was at risk, what the causes of cognitive deficits were and what their effect on various aspects of life (based on the objectives) were.

MoCA is developed as a rapid screening instrument for mild cognitive dysfunction. It assessed different cognitive domains such as attention and concentration, executive functions, memory, language-based learning deficits, vasoconstriction skills, conceptual thinking, calculations, and orientation. Time to administer the MoCA test was approximately 10 minutes. The total possible score was 30 points; a score of 26 or above was considered normal. This study investigated and distinguished without prejudice the students with cognitive deficits such as executive functioning disorders, language-based learning disorders and severe disruption in social cognition.

The research assistants were of help in guiding students on administering the MoCA test/assessment for cognitive deficits. Those who did not have any noticeable signs/cases or degree of CDs were given another seminar on how to prevent the occurrence of CDs and utilize the available resources to prevent their causes and consequences in the future. Those with noticeable symptoms of CDs were taken to the next phase to determine their causes, consequences/effect and coping/management/treatment strategies. That is, the students who met the MoCA test screening criteria proceeded to answer the depression assessment tool (see appendix VII).

By collecting data this way avoided both the stigma and the biases that could arise in such a study dealing with adolescents. Once done with screening the students, the next step was to issue the selected students with a questionnaire to fill as shown in appendix V. Once they filled in the questionnaire, they returned them for safe storage for pre and post analysis.

### **3.10 Data Analysis**

The researcher collected qualitative information in its raw form using the questionnaires and interview collection procedure. Collected data was first inspected for completeness and genuineness. This was accomplished by checking for unfinished questionnaires bits by proof reading, then removing them from the rest of the questionnaires to reduce vagueness in the study hence cleaning the data. Once this was done, suitable coding of data materials was completed by the application of SPSS software version 25. Coding included transmission of diverse data responses with numbers to aid during the analysis process. That is, according different columns with the variable responses. The main

objective of coding was to reduce the large amount of information collected through questionnaire into a database that could be basically utilized in the analysis.

### **3.10.1 Analysis of Quantitative and Qualitative Data**

Descriptive statistics was utilized to interpret data and present findings in this study. The descriptive statistics used were median, percentage and frequency. Inferential statistics from linear regression (Model Summary, analysis of variance) and multiple regression inclusive of regression coefficients were established. Linear regression was used as a method of analysis so as to obtain the level and nature of the relationship that existed among the variables. The findings were presented using tables while explanations were presented in the texts. This method enabled the study to give information as generated from SPSS system in an easy and understandable manner to various stakeholders. The linear regression model exhibited the general empirical models as indicated in 3.1a:

General empirical model

$$Y = C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + R \dots \dots \dots (3.1a)$$

Where:

Y = Vulnerability to Depression

C = Constant

$\beta_i$  = Coefficients to be estimated

X<sub>1</sub> = Executive functioning disorder

X<sub>2</sub> = language-based learning disorder

X<sub>3</sub> = severe disruption in social cognition

R = support system (moderating variable)

The study also subjected the collected data to various diagnostic tests. These tests included normality, linearity, multicollinearity and correlation. These tests were key in ensuring that the collected data was fit and the results were realistic to provide solutions to the study problem.

When analyzing qualitative data (Interview), the researcher derived the interview responses from data collection and thereafter content analysis method was used for analysis purposes. Analysis involved according specific codes to various questions asked during the interview. The codes were able to help towards recitation of the content. Once this was done, the researcher investigated for patterns of responses that were alike on all the collected interview responses. Thereafter, all alike responses were identified in special themes. These themes were further used in generating a report through the help of SPSS.

When carrying out Montreal cognitive assessment, the analyst compared different scores from the research assistants who had collected data from the sampled secondary schools. The scores information was first grouped under the specific objectives of the study such as executive functioning, language-based learning disorders and severe disruption in social cognition. Careful considerations were made on general findings on each objective. The general information was then input into the SPSS for report generation based on each of the objective.

### **3.11 Measurement of the Variables**

The study had a dependent variable, independent variables and an intervening variable. Vulnerability to depression was the dependent variable which was measured using a

questionnaire, interview, MOCA assessment tool and depression assessment tool. The independent variables were executive function disorder, language-based learning disorders and severe disruption in social cognition. Executive functioning disorder was assessed from responses in the questionnaires and interviews. Language-based learning disorders were measured using questionnaires and interviews. Severe disruption in social cognition was measured using questionnaires and interviews. The intervening variable was the social support which was measured using questionnaires and interviews.

### **3.12 Diagnostic Tests**

To effectively determine the suitability of utilizing various regression models in the data analysis process, this study logically approached the analysis based on the precise assumptions on each specific type of data under analysis. As shown in the study model, multiple linear regression model was eventually applied in this study. Therefore, there was need to conduct various diagnostic tests before applying multiple linear regression. This was necessary because of the need to validate the use and not violate the conventions of the classical linear regression model (CLRM). Desecration of CLRM could subject the study to a risk of getting partial, ineffective, and unreliable constraint approximations. These diagnostic tests were multicollinearity test, normality test, test for intervening influence, linearity test, ANOVA test, autocorrelation test and hypothesis test.

#### **3.12.1 Multicollinearity Assumption Test**

During the estimation of linear models, multicollinearity is a challenge normally faced (Mwania, 2018). Multicollinearity transpires after an independent variable in the model is



extremely inter- correlated hence its existence can unpleasantly distress the regression outcomes. This study adopted variance inflation factor (VIF) and tolerance values to test absence of multicollinearity. When VIF is below 5, it shows that there is absence of multicollinearity since it is the undesired situation. When collinearity is present (mainly VIF being more than 5), then the variables are not distinct from one another and may not test different things. If it is superior than or equivalent to 10 this specifies high multicollinearity.

Multicollinearity was established by exploring tolerance level and VIF. Tolerance is a degree of collinearity described by many statistical softwares like SPSS, as the variable's tolerance which is  $1-R^2$ . A minor tolerance figure shows that the variable considered is nearly a seamless linear grouping of the independent variables in the equivalence and it shouldn't be supplemented to the regression equation. Entire variables tangled in the linear connection will partake a minor tolerance. VIF was applied to quantify the influence of collinearity amidst the considered variables in a regression model. Multicollinearity occurs when VIF is superior than 5 and tolerance is lower than 0.2 (Field, 2015). Values of VIF that surpass 10 are viewed as signifying multicollinearity. The VIF was hence computed by help of SPSS (Schober, Boer & Schwarte, 2018).

### **3.12.2 Normality Assumption Test**

The postulation of normality was done on the belief that the basic arbitrary concerned variable is dispersed ordinarily, or almost so. Instinctively, normality can be comprehended as the outcome of the summation of a huge amount of independent

arbitrary actions (Ng'eno, 2019). The assumption test of normality was not to be on the variables being examined, but on the error, which is projected by the residuals. In this study's linear regression model  $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \hat{\epsilon}$ , there was no postulation that Y is customarily dispersed but  $\hat{\epsilon}$  is (Ghasemi & Zahediasl, 2012).

### **3.12.3 Test for Intervening Influence**

The intervening effect of support system on cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya was tested through the Sobel-Goodman mediation test (Mwangi, 2014). This study utilized the level or stage-wise test to bring together the dependent variable on the independent variables, hence joining executive functioning disorders, language-based learning disorder, severe disruption in social cognition and vulnerability to depression. The second stage joined support system (intervening variable) on executive functioning disorders, language-based learning disorder, severe disruption in social cognition and vulnerability to depression.

The third stage, vulnerability to depression was regressed on the independent variables inclusive with the intervening variable. The fourth stage was showing the intervening influence of support system between cognitive deficits and vulnerability to depression. If the connection between support system executive functioning disorders, language-based learning disorder, severe disruption in social cognition and vulnerability to depression on the other side was fully intervened, then the trail between the two groups of variables could result to zero. If the trail is diverse from zero, then incomplete influence state is present (Baron & Kenny, 1986).

### **3.12.4 Linearity Assumption Test**

This research was directed by a specific purpose of probing the linearity and additivity of the connection amongst dependent and independent variables. The likely value of dependent variable (vulnerability to depression) was a straight-line function of individual independent constituents (executive functioning disorders, language-based learning disorder, severe disruption in social cognition), while all other constructs are constant.

### **3.12.5 ANOVA Test**

ANOVA test was used to establish if the multiple regression model would meaningfully forecast the results. This system assessed the changes amidst the means of the populations by probing the difference in respective samples, comparative to the expanse of disparity amongst the models (Kothari, 2014). ANOVA contained valuations that offer data on the echelons of inconsistency in a regression model thereby creating a foundation for significance's test.

### **3.12.6 Autocorrelation Test**

The research adopted the Durbin- Watson test for consecutive relationship to assess for the existence of autocorrelation in the linear panel information. Consecutive autocorrelation was a mutual issue associated with the analysis of panel information and had to be justified so as to attain the right model description. Wooldridge (2002) ascertained that not categorizing and justifying for consecutive relationship in the idiosyncratic error stretch in a panel model could lead to prejudiced ordinary errors and incompetent constraint approximations. For the data to be acknowledged as non consecutive autocorrelation, there should be acceptance of null hypothesis in a study. If

consecutive autocorrelation is identified in the data, then the feasible generalised least square (FGLS) approximation technique is applied.

### **3.12.7 Testing of Hypotheses**

This study used descriptive and inferential statistical techniques to analyse and test the study's hypotheses. Inferential statistics is useful especially in proposition making and result forecast on the population of study. The hypothesis test recognized the connection between executive functioning disorders, language-based learning disorder, severe disruption in social cognition and vulnerability to depression. Rejection section technique was used when ascertaining the momentous value of both the independent and dependent constituents. Hypothesis test contained only two possibilities either to accept or reject the null hypothesis (Ng'eno, 2019; Mwanja, 2018). Therefore, when the calculated test value measurement was superior than the tabulated value, it signposted that it was momentous hence rejecting the null hypothesis ( $H_0$ ) at ( $\alpha$ ) level of significance with confidence constant ( $1-\alpha$ ).

Tabulated value is the significant value at an assumed ( $\alpha$ ) level of significance ( $\alpha$ ). Nevertheless, when the calculated value of test measurement is lower than the tabulated value, it is not significant (Penman, 2016). That signifies that the variance amongst the sample measurement and equivalent parameter-value under null hypothesis, is subsequent of variations of sampling. It shows that the statistics sampled does not offer acceptable indication contrary to the  $H_0$ . It could consequently be acknowledged at  $\alpha$  level of significance.

Table 3.2 indicates tests for hypotheses. It displays objectives, hypotheses, test type and interpretation.

**Table 3.2**

*Tests for Hypotheses*

<b>Objectives</b>	<b>Hypothesis</b>	<b>Test types</b>	<b>Interpretation</b>
To examine the effect of executive functioning disorders on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.	H <sub>01</sub> : Executive functioning deficits have no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya.	Linear and multiple regression analysis	If p-value < 0.05 reject null hypothesis if p-value >0.05 fail to reject the null hypothesis
To investigate the effect of language-based learning disorder on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya	H <sub>02</sub> : Language-based learning disorder has no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya.	Linear and multiple regression analysis	If p-value < 0.05 reject null hypothesis if p-value >0.05 fail to reject the null hypothesis
To assess the effect of severe disruption in social cognition on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya	H <sub>03</sub> : Severe disruption in social cognition has no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya.	Linear and multiple regression analysis	If p-value < 0.05 reject null hypothesis if p-value >0.05 fail to reject the null hypothesis
To examine the intervening effect of support system on cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya	H <sub>04</sub> : Support system has no statistically significant intervening effect on both cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.	Linear and multiple regression analysis	If p-value < 0.05 reject null hypothesis if p-value >0.05 fail to reject the null hypothesis

**3.13 Ethical Considerations**

The researcher first sought ethical clearance from Kenya Methodist University (KeMU).

This approval by KeMU allowed the researcher to acquire a research certification from

the National Commission of Science Technology and Innovation (NACOSTI) to conduct the study. Additionally, the researcher got ethical clearance and was issued with SERC certificate because the study was dealing with minors and human mental health as stipulated in appendix VIII. The researcher then requested authorization from the County Director of Education by an authorization letter (appendix I). Authorization by the school management (MOE interior) gave the researcher the power to access the study information materials from the respondents through letters of introduction (appendix VI). These letters pronounced the purpose of the study, agreement of the study and what was enthusiastically anticipated from the respondents while maintaining high levels of respondent's identity and confidentiality.

Confidentiality was key in this study hence on the one hand; the intended questionnaire and observation notebooks did not have any details such as the names and contacts of the respondents in order to conceal identities of the respondents. There was emphasis of ensuring that no harm was caused towards the respondent's personal image or their physical bodies during the entire research process. On the other hand, every secondary school under this study was named with a distinct code. For example, A3000 represented Meru School.

In addition, relevance of the questionnaire towards the area of research interests was highly reviewed. The research respondents were informed of voluntary participation in the study (appendix II). They were debriefed of what was expected of them before the main study. Any other aid acknowledged from various parties and consultations from previous studies was referenced as guided by the American Psychological Association (APA). Once the respondents finished filling in the questionnaires, the investigator held

them in a secure place pre- and post-data analysis. The study also maintained various Covid-19 health regulations such as wearing of masks, maintaining social distance, avoidance of touching the respondents, fumigating the returned questionnaires before they were put in a sealed envelope, sanitizing and washing of hands before and after entrance to various offices and classrooms in the school.

### **3.14 Chapter Summary**

The chapter has vividly described the location of the study as Meru County. The target population was 389, principals, 1415 English teachers, 566 Guidance and Counseling teachers, 849 Mathematics teachers and 311,200 students in 389 secondary schools in Meru County. The sampling methods have been thoroughly explained and the sampled population given as 27 principals/deputy principals, 86 mathematics teachers, 90 English teachers, 27 counseling teachers and 297 students. The study also described the data collection tools as interview guide, questionnaire, depression assessment tool and Montreal Cognitive Assessment tool (MoCA). Interview guide was used to interview the principals/deputy principals and guidance and counseling teachers.

Mathematics and English language teachers responded to the questionnaires. Students answered and gave their feedback on various cognitive deficits and depression assessment tools such as MOCA test and depression tool. The chapter has also explained how and where pre-test of the data collection instruments was conducted. During the pre-test, 3 deputy principals and 3 guidance and counseling teachers who were interviewed while 9 mathematics teachers and 9 English language teachers answered questionnaires. The data collection process has been categorically explained and substantiated. The study has provided the methods used to analyze various types of data that was collected. The

data was be both quantitative and qualitative data. Additionally, the chapter has also provided description on how data collected was measured, how diagnostic test was conducted and eventually the ethical measures that was observed.



## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This chapter provides the various results and discussions derived from the data collected and analyzed. The results are organized from reliability tests, response rates and background information. Further, diagnostic test results such as normality, linearity, multicollinearity and autocorrelation are presented. Thereafter, the results gotten on vulnerability to depression from teachers' questionnaires, and interviews and those derived from MoCA assessment tool for cognitive deficits from scores by the students are presented and discussed. The chapter further presents the linear regression results on each independent variable such as descriptive statistics, model summary, and ANOVA of all variables separately. In addition, the results on the moderating effects of support system, multiple regression analysis and regression coefficients are presented as well as the study's model.

#### **4.2 Reliability Test Results**

The study conducted a pre-test study where 3 deputy principals and 3 guidance and counseling teachers who were interviewed while 9 mathematics teachers and 9 English language teachers answered questionnaires. Further on, 10 students were assessed using MoCA test and answered respective questionnaires. The results of the pre-test study are indicated in Table 4.1.

**Table 4.1**

*Reliability Results*

<b>Instrument</b>	<b>Cronbach's Alpha</b>	<b>N of Items</b>
Interview	0.827	6
Teachers' Questionnaire	0.849	18
MoCA Test	0.938	10
Student Questionnaire	0.871	10

Table 4.1 shows that the interview guide had a Cronbach Alpha value of 0.827; teachers' questionnaires had 0.849; MoCA test had 0.938 and Student questionnaire had 0.871. From the results, it was factual that all instruments had Cronbach value of above 0.8. According to Suhartini et al. (2021), the Cronbach value of a result instrument should be above 0.7 for it to be reliable in delivering the designated task. Based on this fact, the study's instruments were good.

**4.3 Response Rate**

The study sampled 27 principals/deputy principals, 86 mathematics teachers, 90 English teachers, 27 counseling teachers and 297 students. This was a total of 527 respondents. Fifty-four (54) respondents who were principals/deputy principals and counseling teachers were interviewed while questionnaires were administered to 176 mathematics and English teachers. Additionally, 297 students undertook a MoCA test and the qualifying ones answered the questionnaire. Table 4.2 indicates the response rate.

**Table 4.2***Response Rate*

	<b>Respondents</b>	<b>Sampled Size</b>	<b>Responded</b>	<b>Percentage Responses</b>
<b>Interviews</b>	Principals	27	22	
	Guidance and Counseling Teachers	27	25	
	<b>Total</b>	<b>54</b>	<b>47</b>	<b>87%</b>
<b>Teachers Questionnaires</b>	Mathematics Teachers	86	70	
	English Teachers	90	74	
	<b>Total</b>	<b>176</b>	<b>144</b>	<b>82%</b>
<b>Students Questionnaire</b>		297	237	80%
<b>Total Respondents</b>		<b>527</b>	<b>428</b>	<b>81%</b>

According to Table 4.2, the study was able to collect various forms of data from 22 principals, 70 mathematics teachers, 74 English teachers' 25 guidance and counseling teachers and 237 students. This was a total of 428 which was 81% response rate. The interview responses from the principals and counseling teachers were 47 which was 87% response rate. The questionnaire responses from mathematics and English teachers were 144 which, (82%) response rate. MoCA test and a questionnaire from students' responses were 237, (80%) response rate.

Doss et al. (2021) revealed that for a study's response rate to be excellent, it must garner above 70%, hence making the current study's response rate excellent. The reason why the study attracted many respondents was because of the sensitivity of the matter being addressed. That is, depression which had previously been linked to factors such as poverty and how the adolescents have been brought up. However, when the study considered the prospect of depression being caused by cognitive deficits, it became a whole new revelation of what may actually be troubling the students. Day-in-day-out schools have been battling indiscipline cases as a result of students experiencing depressive episodes. Therefore, having identified cognitive deficits aspects such as executive function disorders, language-based learning disorder, severe disruption of social cognition and support system as some of the causes of depression, the respondents were willing to assist in any way as part of identifying solutions on the matters relating to depression.

#### **4.4 Background Information**

The study inquired background information from the respondents such as principals/deputy principals, counseling teachers, English teachers, and mathematics teachers. The various information sought included working experience (interviews and questionnaire), academic qualifications (interviews and questionnaire) and their positions in school (teachers' questionnaire) Table 4.3 describes the information derived from these respondents.

**Table 4.3***Background Information*

Working experience	Frequency	Percent	Cumulative Percent
More than 10 years	64	32	32
5-10 years	29	15	47
2-5 years	53	27	74
1-2 years	37	19	93
Less than 1 year	15	7	100
Total	198	100	
Academic Qualifications	Frequency	Percent	Cumulative Percent
Post graduate	27	14	14
Graduate	115	58	72
Undergraduate	56	28	100
Total	198	100	

The results in Table 4.3 indicates that most respondents 64(32%) had more than 10 years working experience in the respective schools. It is also worth noting that only 15(7%) of the teaching staff had stayed for less than one year in their respective schools. The years of experience indicated that they had sufficient working experience in the respective schools. This number of years in the said schools provided a wide range of experience in observing various indiscipline traits that could signal depression among the learners such as student's unrest, high teenage pregnancies, poor academic performance, drug and substance abuse, social withdrawals, suicidal ideation and suicide cases among school going students. Additionally, the staff had gotten over years of stay, a chance to interact with the students' parents, guardians and the community at large to understand their

depression symptoms awareness capabilities as a measure of helping adolescents who were at risk or experiencing depressive symptoms.

In addition, the study also inquired on the academic qualifications of the selected members of the school staff. A hundred and fifteen (115) (58%) of them had graduate qualifications. The academic qualifications indicated that most teachers were keen in implementing the assigned tasks of monitoring and evaluating students to differentiate those that were depressed due to cognitive factors and those who had other issues. This would enable the school pinpoint the exact problem on time before it escalated to becoming a bigger issue.

The study inquired from Teachers on what their roles in school were. Seventy (70) teachers indicated that they were mathematics teachers while seventy-four (74) indicated that they were English teachers. The high number of teachers willing to participate in the study proved that there was an underlying concern on what was troubling students in mathematics and English. For example, a past study such as Akinoso (2020) established that mathematics was generally a nightmare to many students in Nigerian secondary schools. However, under specific scope, there was a cropping concern that some of the students may find it difficult in calculations due underlying cognitive conditions. The main point was tracing these students and understanding how these difficulties affected their mental wellness.

## 4.5 Diagnostic Test

The study conducted various diagnostic tests to evaluate whether the collected data conformed to the required standards. The tests included; normality, linearity, multicollinearity and autocorrelation. They are described under section 4.5.1 to 4.5.4.

### 4.5.1 Normality Test

The study conducted normality test by use of one-sample Kolmogorov-Smirnov Test to examine whether the collected data was symmetrical hence not inclined to neither of the sides but evenly distributed along the normal line. The main concentration checked includes observing the asymp sig value in the Normality test. The outcome is shown in Table 4.4.

**Table 4.4**

#### *Normality Test*

		Executive Functioning Disorder	Language - Based Learning Disability	Severe Disruptio n in Social Cognition	Support System	Vulnerabi lity to Depressio n
N		366	366	366	366	366
Normal Parameters <sup>a,b</sup>	Mean	26.3194	25.6111	16.3264	24.7847	23.2083
	Std. Deviatio n	2.48816	2.90914	3.93092	2.68943	2.97983
Most Extreme Differences	Absolute	.084	.088	.082	.060	.083
	Positive	.071	.062	.082	.094	.083
	Negative	-.184	-.188	-.069	-.160	-.083
Kolmogorov-Smirnov Z		.994	.752	.980	.925	1.002
Asymp. Sig. (2-tailed)		.271	.450	.292	.312	.268

a. Test distribution is Normal.

b. Calculated from data.

Table 4.4 indicates that the Asymp. Sig. values were as follows: Executive functioning disorder was 0.271; language-based learning disorder was 0.450; severe disruption in social cognition was 0.292, support system was 0.312 and vulnerability to depression was 0.268. According to Mishra (2019), when the significance values are above 0.05, it indicated that the set data was normally distributed. Therefore, the data in the study was deemed as normal since it had satisfied the standard. The implications of not having normally distributed would result to skewed distribution which could negatively affect the results of the analysis.

#### **4.5.2 Linearity Test**

The study conducted linearity test using the analysis of variance method to examine whether the data would get aligned along a straight line. The outcome is shown on Table 4.5.



**Table 4.5***Linearity Test*

			Sum of	Df	Mean	F	Sig.
			Squares		Square		
Vulnerability to Depression * Executive Functioning Disorder		(Combined)	233.650	11	21.241	2.706	.004
	Between Groups	Linearity	113.090	1	113.090	14.408	.000
		Deviation from Linearity	120.559	10	12.056	1.536	.133
	Within Groups		1036.100	417	7.849		
	Total		1269.750	428			
Language- Based Learning Disability		(Combined)	206.265	14	14.733	1.787	.047
	Between Groups	Linearity	72.234	1	72.234	8.762	.004
		Deviation from Linearity	134.032	13	10.310	1.251	.252
	Within Groups		1063.485	414	8.244		
	Total		1269.750	428			
Severe Disruption in Social Cognition		(Combined)	214.835	17	12.637	1.509	.101
	Between Groups	Linearity	72.485	1	72.485	8.658	.004
		Deviation from Linearity	142.351	16	8.897	1.063	.398
	Within Groups		1054.915	411	8.372		
	Total		1269.750	428			
Support System		(Combined)	119.562	11	10.869	1.247	.262
	Between Groups	Linearity	68.644	1	68.644	7.878	.006
		Deviation from Linearity	50.919	10	5.092	.584	.824
	Within Groups		1150.188	417	8.714		
	Total		1269.750	428			

Table 4.5 presents the significance value results of all the variables accordingly. The Executive functioning disorder was 0.133; language-based learning disorder was 0.252; severe disruption in social cognition was 0.398, support system was 0.824. The values were all above 0.05 and according to Djaballah-Djeddour and Tazerouti (2022), when the significance values in a linear table are above 0.05, the data is linear meaning that there is a direct relationship between the independent and dependent variables investigated.

### 4.5.3 Multicollinearity

The study conducted multicollinearity test to examine whether the independent variables were highly correlated with other independent variables hence undermining their statistical relevance. Kim (2019) indicated that for data to be free of multicollinearity, it should have a tolerance level of above 0.2 and VIF of less than 5. The outcome is shown on Table 4.6.

**Table 4.6**

*Multicollinearity*

Model	Tolerance	VIF
Executive Functioning Disorder	.364	2.748
Language-Based Learning Disability	.559	1.789
Severe Disruption in Social Cognition	.932	1.073
Support System	.386	2.590

The results on Table 4.6 show that the tolerance and VIF of executive functioning disorder was 0.364 and 2.748 respectively; language-based learning disorder had a tolerance and VIF of 0.559 and 1.789 respectively; severe disruption in social cognition

had a tolerance and VIF of 0.932 and 1.073 respectively; support system had a tolerance and VIF of 0.386 and VIF of 2.590. Therefore, since the tolerance levels were above 0.05 and VIF below 5, the data did not have multicollinearity.

#### 4.5.4 Autocorrelation Test

The study conducted autocorrelation test using Durbin Watson. Turner et al. (2021) described that when Durbin-Watson value is 1-2, there was a positive autocorrelation; 2-4 meant that there was a negative autocorrelation. The outcome is shown on Table 4.7.

**Table 4.7**

#### *Autocorrelation Test*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.864 <sup>b</sup>	.746	.737	2.84115	1.595

a. Predictors: (Constant), Support System, Severe Disruption in Social Cognition, Language Based Learning Disability, Executive Functioning Disorder

b. Dependent Variable: Vulnerability to Depression

The results indicate that the Durbin Watson was 1.595 signifying that the data had a positive autocorrelation since it lay between 1 and 2. This meant that all variables maintained their characteristics and not easily swayed away by other variables. For example, independent variables maintained their independence vis a vis dependent and intervening variable.

#### 4.6 Analysis of Vulnerability to Depression

Vulnerability to depression had constructs such as low academic performance, adolescent pregnancies, absenteeism, low self-esteem, loneliness and withdrawal from others, school

drop-out, engagement in risky sexual behaviors, and suicidal ideation. The study interviewed, administered different questionnaires and conducted MoCA test to different sampled population. The first questionnaire which was answered by English and Mathematics teachers had five-point Ordinal Likert Scale of between 1-5. Where; 1- strongly disagree; 2- disagree; 3-neutral; 4- agree and 5- strongly agree. The outcome is shown in Table 4.8.

**Table 4.8***Vulnerability to Depression*

<b>Statements N=144</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Median</b>
Loss of memory hampers activities	1(1%)	3(2%)	0(0%)	15(10%)	125 (87%)	<b>5.00</b>
Stammering causes depression to students	1(1%)	21(15%)	0(0%)	45(31%)	77 (53%)	<b>5.00</b>
Reading disorders affects mood of the students	6(4%)	64(45%)	0(0%)	74(51%)	0(0%)	<b>4.00</b>
Mathematics learning disorder leads to low self-esteem	2(1%)	3(2%)	0(0%)	123 (85%)	16 (12%)	<b>4.00</b>
Writing disorders causes students feel unaccomplished	25(17%)	21(14%)	10(7%)	33(24%)	55 (38%)	<b>4.00</b>
Depression awareness	40(28%)	44(31%)	0(0%)	24(16%)	36 (25%)	<b>2.00</b>

Table 4.8 indicates that majority 125(87%) of Mathematics and English teachers strongly agreed that temporary loss of memory caused students not to perform their normal daily activities (median 5.0). In addition, 45(31%) agreed and 77(53%) Mathematics and English teachers strongly agreed that stammering caused students to suffer from slight

depression which occurs for a long period of time (median of 5.0). Nevertheless, 44(28%) strongly disagreed and 44(31%) disagreed that their schools had raised awareness on how students could know their fellow students were depressed. This meant that in most schools, depression was still not a well understood condition. Schools could have acquaintances to the term but did not articulately understand how to identify a depression case. In the case of the students, it becomes even more challenging since most of them cannot see obvious signs hence generally thinking that depressed students are moody.

The results are also in line with Cuijpers et al. (2018) argument that during most psychotherapies, the families of depressed persons come to reality that they thought they knew what depression was but in real sense they did not. Lack of awareness has often led to the depressed patients harming themselves or the ones close to them which raises concern among the family members on depression status of their kin. In the same case, it was realized that most schools thought that they understood depression but it occurs right before their eyes without teachers, non-teaching staff and students realizing it till the damage is done.

The researcher also interviewed various respondents such as principal/deputy principals and counseling teachers who were named as 1 to 47. The first question inquired on the measures put in place to equip students who may have gotten temporary loss of memory due to abuse of drugs hence unable to read and write examination answers. The principals and counseling teachers indicated that they had measures such as frequent counseling sessions; motivational talks from peers and other teachers to avoid drug and substance abuse; and encouragement of the students to join guidance and counseling clubs. Frequent counseling sessions related to number of times a student was subjected to one

on one or group counselling. The initiator of the counseling session could be the student or the counselor. Motivational talks from peers and teachers involved communication to students through assemblies, special sessions with each class or group talks so as to ensure that students understood what drug and substance abuse was all about and how it could be avoided. Encouraging students to join guidance and counseling clubs related to making the group attractive, raising awareness on the relevance of the group through peer-to-peer or directly from teachers. When all these measures were taken, it was very unlikely that students would not be in capacities to write their examinations.

Additionally, an interviewee named '5' was quoted saying that,

*“We issue students with examinations’ rules and regulations manually in which failure to adhere would lead to punishments such as suspension and expulsion.”*

What this meant was that teachers mainly capitalized on the use of fear of being punished to enable students to follow specified rules and regulations and also avoid taking drugs and substances in a bid of avoiding memory loss. Students were very much aware that examinations required their minds to fully concentrate and remember things taught in class. Otherwise, examination malpractices were not entertained. Nevertheless, based on the findings, it was clear that drug and substance abuse was still a major threat in many schools. This was because; the respondents admitted that students were still using drugs and substances which were worsening the situation of cognitive deficits. It was noted that the abuse of drugs could lead to mental blackout and memory loss though for a short time. However, pro-longed use of drugs and substances would eventually cause permanent memory damage to a point that a user could not remember anything unless

they took the drugs. The results by Hammond (2020) also found out that as a result of extensive period of time during Covid-19 pandemic, most adolescents became idle hence tried various behaviors such as abuse of drugs which affected their memory status. When these students were recalled back to school, they did not stop these behaviors hence experienced frequent memory blackouts. Furthermore, Magidson et al. (2017) found that alcohol use correlated with ill mental health amongst South African adolescents in Johnsonburg city. This is whereby, the more they consumed alcohol, the more mental health related cases were recorded. Eventually, majority of adolescents who abused drugs ended up with psychiatrist hospitals.

The second question inquired how depression among students affected their performance. The principals and counseling teachers indicated that depression caused decline and low academic performance, withdrawal from co-curricular activities such as games, and isolation from general interactions with other students' such as not attending study groups clubs and movements. Decline and low academic performance were described by the respondents as the concern of students getting lower marks in the examination as compared to what they previously had or expected. Withdrawal from co-curricular activities such as games was described by respondents as the act of a student who was very active and engaged in games activities, becoming less interested or avoiding the games without any explanation or good reasons. Isolation from general interactions with other students was described as students failing to engage in terms of thought and activities that their peers were engaging in. These activities could be classroom related, discussion groups, playgroups, prayer groups and general conversations. It is true that depression will always take a toll on people to a point that their normal operations are



negatively affected. To be able to conduct a day's operations effectively, one has to have a clear mind free of stress. In relation to drug and substances abuse, stress was discovered to be brought about by lack of money to buy drugs, conflicts with teachers and fellow students, increased tension or fear of being caught in the act of abusing drugs. Liew (2019) was able to link depression to decline in cognitive abilities that help a person in performing well and also associating with others. According to Liew (2019), when people got depressed caused by factors such as abuse of drugs, this led to low level of reasoning and having meaningful interactions with others. However, Liew (2019) advised that depression which is normally associated with sadness could also manifest in other extreme which is happiness. The study revealed that depressed people could be over-engaging in activities and do not show any signs of depression. This is actually a dangerous sign since people will never actually know that someone is depressed till it is too late.

The third question inquired the signs that the school management looked for to notice a depressed student. The principals and counseling teachers indicated that the school observed cases of isolation, aggressiveness, indiscipline, sadness, weeping, absenteeism, low self-esteem, low academic performances, and school drop-out. The cases of students' isolation were mostly linked with aggressiveness when someone came to interfere with their spaces. From the responses, one thing that was clear was that when a student who had previously no indiscipline issues, became undisciplined more than three times in a term, it was a sign that all was not well. Additionally, other manifestations included jovial student suddenly becoming sad and numb to anything good to a point of portraying signs like crying without being provoked, not believing in themselves, failing in school,

skipping classes and all together not coming to school. In addition, an interviewee named '38' was quoted saying that,

*“This being a girls’ school only, we are very keen in noting the number of pregnant girls and the underlying causes for their pregnancies.”*

It is worth noting that depression is defined as stress experienced over a long period of time. This means that as stressful adolescent is graduating into full blown depression status, they may portray behaviors that are new, different and out of normalcy. These behaviors can only be noticed by someone who pays attention to their routine. It is very easy to dismiss quietness of a person but could be an underlying problem especially if the person is previously known to be talkative. A report by World Health Organization (2020) advised that when monitoring the development and mental health of the adolescents, it is key to notice any behaviors out of norm. These behaviors may vary from extreme happiness or sadness; withdrawal; decline in energy levels as compared to past experiences in doing things; and excessive defense even when uncalled for.

The fourth question enquired the measures that had been put into place to treat various types of depression in the school. The principals and counseling teachers majorly indicated that schools had concentrated mostly on counseling and medication on minor and major depression cases respectively. In addition, an interviewee named '13' was quoted saying that,

*“It takes keen evaluation by the counseling teacher to recommend medication in a depression case, otherwise mostly counseling and peer influence are main methods used.”*

Meyer and Ndetei (2016) raised similar concerns on having well established ways such as counseling and medication to treat mental health cases in Kenya for sustainability. The authors made several revelations of traditional methods of treating depression which caused more harm to patients or were of no value.

The fifth question inquired the procedures followed when assessing the general well-being of students. The principals/deputy principals and counseling teachers indicated that the first step was creating a friendly environment for the student. This was whereby the school system provided channels and opportunities that students could utilize to speak out their issues. It may seem that their problems were small or few but when weighed on the scale of counseling, it could be a life-saving phenomenon. The second step was to assign various tasks which could vary from education and physical exercise. This was where teachers worked hand-in-hand with the students to understand the causal factors of depression.

In relation to this study, cognitive deficits could be causal factor that are considered when ruling out the causes of depression cases. The teachers assign tasks that involve mathematical problems, grammar and a bit of dictation. The third step involves creating a timeline for accomplishing the tasks. This is whereby the students are allocated reasonable time to complete a task. The timing could be different based on the task at hand. The fourth step involved seeking to know the reasons for lack of timely accomplishment of the tasks, in case the situation cannot be resolved within the jurisdiction of the school's environs due to health issue and capacity, seek further interventions from qualified guidance and counseling professionals or other mental health professionals.

## **4.7 Montreal Cognitive Assessment (MoCA) Results**

The Montreal Cognitive Assessment Tool [MoCA] was used when collecting data from 237 students who agreed to participate in the study. This involved inviting students in the selected schools to learn about cognitive deficits in an open forum such as during the assembly/seminar presentations. After the initial assembly/presentation, students were invited for an assessment to ascertain whether/those who were having any cases of CDs.

This study investigated and distinguished without prejudice, the students with cognitive deficits such as executive functioning disorders, language-based learning disorders and severe disruption in social cognition. The study asked several questions in form of diagrams, tables, statements and calculations and the findings are as shown from section 4.7.1 to 4.7.7.

### **4.7.1 Visuospatial Test**

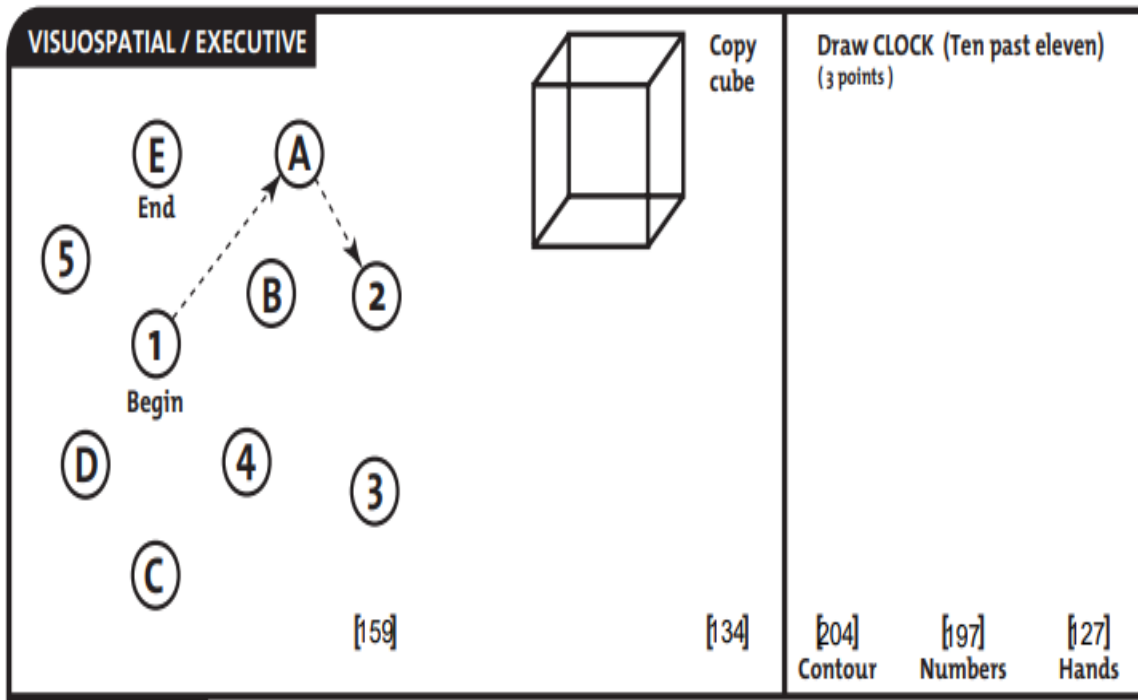
This was a test conducted to assess whether students were able to draw trails, draw cubes and a clock showing specified time. The specific assignment as shown on Figure 4.1 had the following instructions:

- i. The researcher instructed the subject: *"Please draw a line, going from a number to a letter in ascending order. Begin here [point to (1)] and draw a line from 1 then to A then to 2 and so on. End here [point to (E)]."*
  
- ii. The researcher gave the following instructions, pointing to the cube: *"Copy this drawing as accurately as you can, in the space below"*.

- iii. The researcher indicated the right third of the space and give the following instructions: “Draw a clock. Put in all the numbers and set the time to 10 after 11”.

**Figure 4.1**

*Visuospatial Test Results*



Source: Montreal Cognitive Assessment Test

According to Figure 4.1, 159 (67%) students were able to successfully complete the trail drawing, while 134 (57%) were able to draw a copy of the cube. When drawing the clock, 204(86%) students were able to draw the contour of the clock, 197 (83%) were able to add numbers and only 127 (54%) were able to draw the precise time which was ten past eleven. The results indicated that majority of students were able to understand

and draw what they were directed to do. This meant that most students were able to cognitively process information to give it a meaning (Morsanyi et al., 2018).

#### 4.7.2 Naming Test

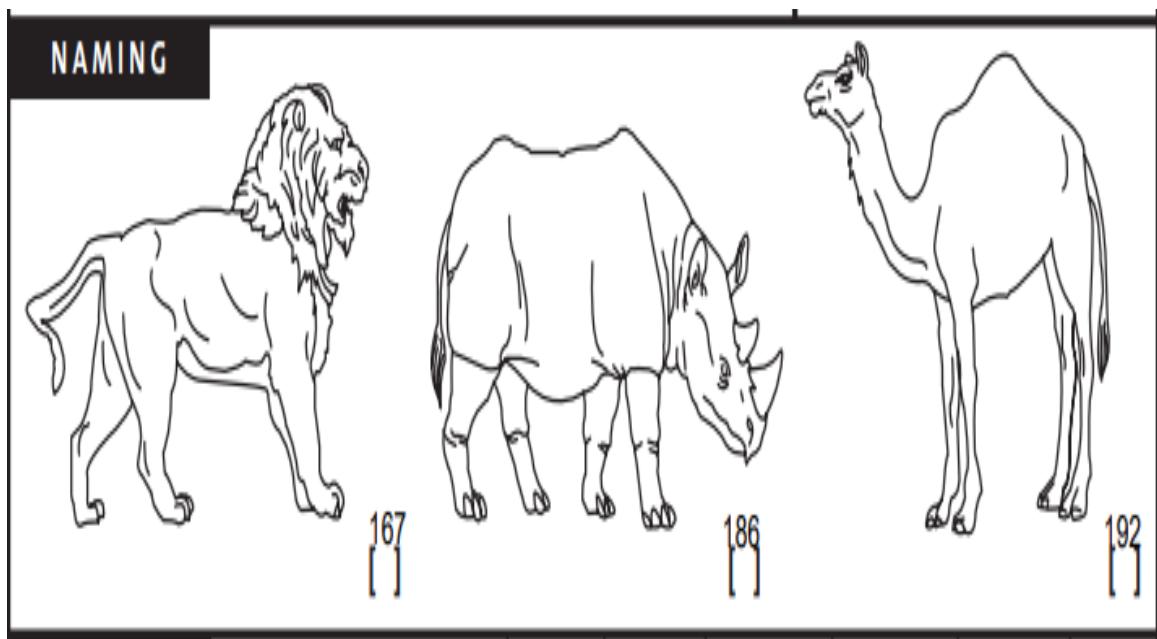
This was a test conducted to assess whether students were able to name various animals.

The specific assignment as shown on Figure 4.2 had the following instructions:

*The researcher gave a picture of a camel, lion and a rhino and told them to point to each figure and name the animal.*

#### Figure 4.2

*Naming Test Results*



Source: Montreal Cognitive Assessment Test

According to Figure 4.2, based on a sample of 237 students who undertook the test, 167(70%) of them were able to identify a lion correctly; 186 (78%) students were able to

identify a rhino correctly and 192(81%) were able to identify a camel correctly. The results indicated that most students were able to positively identify the animals without strain. This meant that students were able to comprehend non-verbal information such as animal identification (Mostafa et al., 2018).

#### **4.7.3 Memory Test**

This was a test conducted to assess whether students were able to recall five words after a span of five minutes and 10 minutes. The specific assignment as shown on Table 4.9 had the following instructions:

- i. The researcher read a list of 5 words at a rate of one per second, giving the following instructions: *“This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn’t matter in what order you say them”*. Mark a check in the allocated space for each word the subject produces on this first trial. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, read the list a second time with the following instructions: *“I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time.”* Put a check in the allocated space for each word the subject recalls after the second trial.
- ii. At the end of the second trial, the researcher informed the subject that (s)he will be asked to recall these words again by saying, *“I will ask you to recall those words again at the end of the test.”*

**Table 4.9**

*Memory Test Results*

Memory		FACE VELVET CHURCH DAISY RED				
		1st trial	2nd trial	1st trial	2nd trial	1st trial
Read list of words, subject	1st trial	64	38	32	21	19
A recall after 5 minutes	2nd trial	22	16	12	18	5

Source: Montreal Cognitive Assessment Test

According to Table 4.9, 64 (27%) and 22 (9%) students were able to recall the word ‘face’ during first and second trial respectively. Further, 38 (16%) and 16 (7%) students were able to recall the word ‘velvet’ during first and second trial respectively. Likewise, 32 (14%) and 12(5%) students were able to recall the word ‘church’ during first and second trial respectively. Additionally, 21(9%) and 18(7%) students were able to recall the word ‘daisy’ during first and second trial respectively. Further, 19 (8%) and 5(2%) students were able to recall the word ‘red’ during first and second trial respectively. The results indicated a very serious concern of students not retaining information for long hence a sign that the number of students suffering from cognitive deficits was indeed true and high (Niolaki et al., 2020).



#### 4.7.4 Attention Test

This was a test conducted to assess whether students were able to pay attention towards various numeric and alphabets. The specific assignment as shown on Table 4.10 had the following instructions:

- i. The researcher gave the following instruction: *“I am going to say some numbers and when I am through, repeat them to me exactly as I said them”*. Read the five number sequence at a rate of one digit per second.
- ii. The researcher gave the following instruction *“Now I am going to say some more numbers, but when I am through you must repeat them to me in the backwards order.”* Read the three number sequence at a rate of one digit per second.

**Table 4.10**

*Attention Test Results*

Attention	Read list of digits (1 digit/sec)						
	<b>Subject has to repeat them in the forward manner</b>	[52]	2	1	8	5	4
	<b>Subject has to repeat them in the backward order</b>	[41]	7	4	2	0	0

**Read list of letters. The subject must tap with his hand at each letter A.  
No points if  $\geq 2$  errors**

[62] FBACMNAAJKLBAFAKDEAAJAMOF AAB

Source: Montreal Cognitive Assessment Test

According to Figure 4.4, 52 (22%) students were able to repeat (2,1,8,5,4) in forward order while 41 (17%) students were able to repeat (7,4,2) in backward order. Additionally, only 62 (26%) students were able to tap letter A. The number of students able to pay attention was low signifying the probability of cognitive deficit issue (Olthuis et al., 2016).

#### **4.7.5 Language Test**

This was a test conducted to assess whether students were able to pronounce words and repeat sentences hence a test of their language skills. The specific assignment as shown on Table 4.11 had the following instructions:

- i. The researcher gave the following instructions: *“I am going to read you a sentence. Repeat it after me, exactly as I say it [pause]: I only know that John is the one to help today.”* Following the response, say: *“Now I am going to read you another sentence. Repeat it after me, exactly as I say it [pause]: The cat always hid under the couch when dogs were in the room.”*
- ii. The examiner gave the following instruction: *“tell me as many words as you can think of that begin with a certain letter of the alphabet that I will tell you in a moment. You can say any kind of word you want, except for proper nouns (like Bob or Boston), numbers, or words that begin with the same sound but have a different suffix, for example, love, lover, loving. I will tell you to stop after one minute. Are you ready? [Pause] Now, tell me as many words as you can think of that begin with the letter F. [time for 60 sec]. Stop.”*
- iii. The researcher asked the subject to explain what each pair of words had in common, starting with the example: *“Tell me how an orange and a banana are*

*alike*". If the subject answers in a concrete manner, then say only one additional time: "Tell me another way in which those items are alike". If the subject does not give the appropriate response (*fruit*), say, "Yes, and they are also both fruit." Do not give any additional instructions or clarification.

- iv. After the practice trial, the researcher read: "Now, tell me how a train and a bicycle are alike". Following the response, administer the second trial, saying: "Now tell me how a ruler and a watch are alike". Do not give any additional instructions or prompts.

**Table 4.11**

*Language Test Results*

<b>Language</b>	<b>Read list of digits (1 digit/sec)</b>	
	<b>Repeat: I only know that John is the one to help today</b>	[92]
	The cat always hid under the couch when dogs were in the room	[75]
<b>Abstraction</b>	<b>Similarity between e.g., Banana. Orange= Fruit</b>	
	<b>Train. Bicycle</b>	[34]
	<b>Watch. Ruler</b>	[17]

Source: Montreal Cognitive Assessment Test

Figure 4.5 indicates that 92(39%) students were able to repeat the first sentence and 75(32%) the second one. Additionally, 34(14%) students were able to categorize train and bicycle as means of transport while only 17(7%) were able to categorize watch and a ruler as measuring instruments. It was evident that students struggled a lot in language skills since less than half of them managed to positively repeat sentences and indicate the similarity (Ooko et al., 2019).

#### 4.7.6 Delayed Test

This was a test conducted to assess whether students were able to recall some of the words in section 4.7.3. The specific assignment as shown on Table 4.12 had the following instructions:

The researcher gave the following instruction: *“I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can remember. Make a check mark (3) for each of the words correctly recalled spontaneously without any cues, in the allocated space.*

**Table 4.12**

*Delayed Test Results*

Delayed recall	Has to recall	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUEDED recall only
		With no CUE	24	9	11	5	2

Source: Montreal Cognitive Assessment Test

The results indicate that only 24(10%) students were able to recall ‘face’; 9(4%) students were able to recall ‘velvet’; 11(5%) students were able to recall ‘church’; 5(2%) students were able to recall ‘daisy’ and 2(1%) students were able to recall ‘red’. The number of students able to recall what they were told few minutes before was low signifying the probability of cognitive deficit (Oyono et al., 2018).

#### 4.7.7 Orientation Test

This was a test conducted to assess whether students were well oriented to the current day, time, month and place/city. The specific assignment as shown on Table 4.13 had the following instructions:

- i. The researcher gave the following instructions: *“Tell me the date today”*. If the subject does not give a complete answer, then prompt accordingly by saying: *“Tell me the [year, month, exact date, and day of the week].”* Then say: *“Now, tell me the name of this place, and which city it is in.”*

**Table 4.13**

#### *Orientation Results*

Orientation	[169]	[237]	[237]	[237]	[237]	[237]
	Date	Month	Year	Day	Place	City

Source: Montreal Cognitive Assessment Test

According to Figure 4.7, 169 (71%) students were able to articulately know the day’s data without hesitation while all the 237 (100%) students knowing the month, year, day,

place and city. The students were conscious on their location, time, day month, and year hence their cognitive deficits concerns were not severe (Pile et al., 2020).

#### **4.8 Student Depression Tool Results**

One hundred and seventy-five (175) students who undertook the MoCA test failed to reach the minimum threshold of 26 points and above. A MoCA score of above 26 is considered to be normal. These students were issued with a student depression tool in form of a questionnaire to fill in. The tool had six statements each with four replies which the students were supposed to select their responses from. The six statements are indicated in section 4.8.1 to 4.8.6.

##### **4.8.1 Low Academic Performance**

The first statement on depression tool examined the students' sentiments on low academic performance. The outcome is shown in Table 4.14.

**Table 4.14***Student Depression Assessment Tools- Low Academic Performance*

	Frequency	Percent	Cumulative Percent
I find a challenge in keeping up with high grades in my studies	20	11	11
Hard examination makes me fail	57	33	44
I do not understand a lot of things taught in class	57	33	77
I am not worried when I fail exams	41	23	100
Total	175	100	

According to Table 4.14, it was clear that most students 57(33%) indicated that hard examinations made them fail and that they did not understand a lot of things taught in class. This meant that as a result of low understanding about various subjects taught by their teachers due to cognitive challenges, they experienced a hard time during examinations since the exams were set based on what they had learnt hence ending up performing poorly. In Ethiopia, Girma et al. (2021) indicated that a mental condition of immediately forgetting things taught in class was the leading determinant of depression on school going adolescents. This situation was brought about the fact that even though adolescents understood what was taught, the ability to recall after even a day was the main worry of depression among students in secondary school of Jimma town-Ethiopia.

### 4.8.2 Adolescent Pregnancies

The second statement on depression tool examined on the student's sentiments on adolescent pregnancies. The outcome is shown in Table 4.15.

**Table 4.15**

*Student Depression Assessment tools- Adolescent Pregnancies*

	Frequency	Percent	Cumulative Percent
I fear making someone or getting pregnant	49	28	28
I would abort a baby if I made someone or got pregnant	28	16	44
I would drop my studies if I made someone or got pregnant	61	35	79
My parents would send me away from home if I made someone or got pregnant	37	21	100
Total	175	100	

According to Table 4.15, 61(35%) students indicated that they would drop studies if they made someone or got pregnant. Further, 49(28%) students indicated that they actually feared making someone or getting pregnant. That is, students knew that unplanned pregnancies came with responsibilities that would make them drop-out of school to look for manual jobs to take care of the baby. This therefore sent fear on engaging in pre-martial sexual relations that could put them in the hotspot. Therefore, this showed that in as much as students struggled with cognitive deficits issues, they were aware on the



negative impact adolescents' pregnancies had in their studies. This emphasis was also stipulated by Aziato et al. (2016) who gathered -responses of adolescents on the issue about pregnancies in Ghanaian schools. The adolescents pointed out that since a baby needed over 6 months of breastfeeding, it was paramount that the adolescent mother would drop from school hence have an uncertain future. Additionally, Gentile (2017) indicated that bearing children when the mother and father were not prepared such as the one in school had detrimental consequences on the mother, the baby and the society. The young mothers would fall into depression due to rejection by family members, lack of provision of maternity needs such as delivery fee, baby cloths and after delivery drugs and care. This would lead to high maternal deaths while at the same time adolescents' mothers that survive may fall into post-delivery depression. Further, even if the mother and the child were able to cope with the post-delivery stages, the born children would not have their needs such as food, clothing, and shelter adequately met due to lack of regular income (Termine et al., 2018).

#### **4.8.3 Absenteeism**

The third statement on depression tool examined on the student's sentiments on absenteeism. The outcome is shown in Table 4.16.

**Table 4.16***Student Depression Assessment tools- Absenteeism*

	Frequency	Percent	Cumulative Percent
I am never worried if miss I classes	52	30	30
I am always happy when not in class/ school	39	22	52
I do not get punished for missing school	39	22	74
School is boring	45	26	100
Total	175	100	

According to Table 4.16, 52 (30%) of the students were not worried when they missed classes. Other 45(26%) students indicated that school was boring. This meant that the students experiencing cognitive deficits felt uncomfortable in classes and did not mind missing school since it was a place where their weaknesses were exposed to other students. Gnaedinger et al. (2016) found out that in the elementary years of a child, reading was considered one of the main parameters of gauging intelligence. As the child develops into adolescence, they will notice several body and general weaknesses they have. In case they are still not able to read well at secondary schools, they feel out of place and when their weakness is exposed to other students, they feel so uncomfortable.

**4.8.4 Low self-esteem**

The fourth statement on depression tool examined on the student's sentiments on low self-esteem. The outcome is shown on Table 4.17.

**Table 4.17***Student Depression Assessment tools- Low Self-Esteem*

	Frequency	Percent	Cumulative Percent
There are a lot of bullies in school	48	28	28
I normally feel lost in company of others	52	30	58
My family/ parents/ teachers/ fellow students do not understand me	38	22	80
I would escape from school/ home if I got a chance	37	20	100
Total	175	100	

According to Table 4.17, 52(30%) students felt lost in the company of others. Additionally, 48 (28%) students complained that there were a lot of bullies in school. The results meant that when students experiencing cognitive deficits issues tried fitting in with other students, they felt lost due to excessive bullying. Harrison et al. (2021) named bullying as an element that brought stress to adolescents. According to the study, any form of bullying breaks an adolescent down but the impact is more detrimental when bully aims at the psychological strengths of a person. In simpler terms, when a student is bullied based on their family background, it does not hurt more than when the bullying is based on mental and body weaknesses making them vulnerable to depression.

**4.8.5 Loneliness and Withdrawal**

The fifth statement on depression tool examined on the student's sentiments on loneliness and withdrawal. The outcome is shown in Table 4.18.

**Table 4.18***Student Depression Assessment tools- Low Academic Performance*

	Frequency	Percent	Cumulative Percent
I like keeping to myself though I miss being around people	38	22	22
It is very hard talking to people about my struggles	47	27	49
No one seem to care that I am around	41	23	72
I would rather stay alone than talk or play with my friends	49	28	100
Total	175	100	

According to Table 4.18, 49 (28%) students indicated that they would rather stay alone than play with their friends. Additionally, 47 (27%) felt that it was hard talking to people about their struggles. This is actually where the problem was. Students with cognitive deficits felt that it was very hard to really explain what they were going through since their friends would not understand their concerns. Junge et al. (2017) noted that it becomes so complicated for a person that has ever undergone through depression to come out and speak on their weaknesses. This leaves them in solitude being and feeling lonely and ever doubting how the next person they interact with would view them. Additionally, there is normally a high chance of being labeled as mentally challenged or insane when one comes out as undergoing cognitive deficit. This may even push an adolescent deeper into depression.

#### 4.8.6 School drop-out

The sixth statement on depression tool examined student's sentiments on school drop-out.

The outcome is shown in Table 4.19.

**Table 4.19**

*Student Depression Assessment tools- School Drop-Out*

	Frequency	Percent	Cumulative Percent
Lack of school fees have made my friends drop school	70	40	40
Tough punishment is the main cause of some students leaving school	31	18	58
I would rather open a business than complete school	33	19	77
My friends outside school encourage me to join them	41	23	100
Total	237	100	

According to Table 4.19, 70 (40%) students indicated that lack of school fees was the main reason why their friends dropped out of school. Additionally, other 41(23%) students revealed that their friends who were not in school encouraged them to drop-out as well. Based on the two revelations, it is clear that students dropped out of school due to poverty and peer influence from their friends. A past study such as Mutua et al. (2019) discovered that female adolescents that came from poor backgrounds were more prone to early pregnancies.

Further, when these young mothers gave birth, most of them did not go back to school due to negative influence from other women that they interacted with. Additionally, Mwingirwa (2016) complained that ability of school going adolescents to interact with their peers out of school encourages them to drop school so as to join their friends. The two authors paint a picture that non-school going people have a lot of school drop-out influence on the school going adolescents which is a fact that is mostly ignored.

#### **4.9 Analysis of Executive Functioning Disorder and Vulnerability to Depression**

Executive Functioning Disorder had constructs such as multitasking, time management, memory, emotional control, organizational skills, processing information and paying attention. The study administered questionnaires and interviewed respondents. The questionnaires were answered by Mathematics and English teachers, while the interviews were conducted on principals and counseling teachers. The questionnaire had five-point Ordinal Likert Scale of between 1-5. Where; 1-strongly disagree; 2- disagree; 3-neutral; 4- agree and 5- strongly agree. The outcome is shown in Table 4.20.

**Table 4.20***Executive Functioning Disorder on Vulnerability to Depression*

<b>Statements N=144</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Median</b>
Alternative punishment to reduce executive functioning disorders	0(0%)	0(0%)	0(0%)	16(11%)	128 (89%)	<b>5.00</b>
Mental effect of drug and substances abuse such as lack of attention	0(0%)	10(7%)	2(1%)	16(11%)	116 (81%)	<b>5.00</b>
Writing literature to remember memories and control emotions	2(1%)	0(0%)	0(0%)	131 (91%)	11(8%)	<b>4.00</b>
Systems to speak out on mental torture leading to memory loss	68(47%)	38(26%)	27(19%)	10(7%)	1(1%)	<b>2.00</b>
Campaigns on poor multitasking & poor time management	73(51%)	53(37%)	18(12%)	0(0%)	0(0%)	<b>1.00</b>
Encouraging students with poor organizational skills	0(0%)	23(16%)	0(0%)	60(42%)	61 (42%)	<b>4.00</b>

According to Table 4.20, 128 (89%) of Mathematics and English teachers strongly agreed that the school was keen on ensuring that corporal punishment was not administered hence alternative ways so as to reduce mental effect such as cognitive deficits (mean of 5). Additionally, 116(81%) of the Mathematics and English teachers strongly agreed that there were campaigns and awareness strategies in school by the students on the mental effect of drug and substances abuse such as lack of attention. Nevertheless, 68(47%) strongly disagreed and 38(26%) disagreed that there were systems in school for students to speak out when they were undergoing physical and mental torture (mean of 2). Additionally, 73(51%) strongly disagreed and 53 (37%) disagreed that there were campaigns conducted in school to educate students on various mental health issues such as poor multitasking, poor time management and lack of attention.

The results indicate that though there were awareness campaigns on mental health issues as a result of drug and substance abuse, there still lacked awareness made on mental health issues due to cognitive deficits making students unable to multitask, manage time and lack attention. This lack of awareness was due to unavailability of systems and communication channels that students suffering from cognitive deficits could speak up on to get help. The findings relate with Mwoma (2017) on how adolescents who had special needs underwent through their education system. In this regard, the study compared adolescents who were extremely affected hence required special schools and the ones who were less affected.

Therefore, Mwoma (2017) found out that the adolescents who were less affected such as the ones with cognitive deficits, did not understand what the problem was. This is because in the schools, mental health awareness was only discussed in the event of drugs



and substances abuse and indiscipline cases. Therefore, the message communicated was that students had mental health challenges due to immoral behavior they were engaging in such as abuse of drugs and indiscipline cases. According to Mwoma (2017), the case where a student could still have mental health issues and they had not abused any drugs, was not discussed in the awareness programs. The fear made students suffering from cognitive deficits fail to speak out to avoid victimization and stigmatization.

The researcher also interviewed various respondents such as principals and counseling teachers who were named as 1 to 47. The first question inquired on the challenges that had been experienced by students who suffered from various executive functions such as poor multitasking, poor time management, low memory, poor emotional control, poor organizational skills, poor processing information and low attentiveness. The principals and counseling teachers indicated that such students get bullied, have low self-esteem, have indiscipline issues such as fighting the students laughing at their weaknesses, and get low grades. The respondents indicated that bullying as commonly known as intimidation of someone was so common in secondary schools.

This is whereby a student got mishandled and intimidated to either create fear in them or just for fun. As a result, students felt unsafe and developed low self-esteem. Bullying was a rude way of speaking out someone's weaknesses in form of class, dressing, grooming, sleeping, eating, or general existence. When student's self-esteem was bruised, it resulted to either of the two things; the first outcome was that the bullied student entered a self-defense mode which mainly meant that they would either answer back, insult or fight with the person bullying them. However, retaliation or fighting back mainly relied on the physical strength of the student being bullied in comparison to the bully. Alternatively,

when the student's physical strength was not adequate, they resulted to extreme fear of the bullying students and eventually begun self-doubt on their academic capabilities. Once the battle was lost in the mind, low performance was inevitable.

In addition, an interviewee named '27' was quoted saying that,

*“Once a student is not able to pay attention in class, they do not see the need to learn hence skipping classes and school altogether.”*

From the response, it was clear that the ability of a student to remain attentive in class is what kept them in school. Therefore, any disruption that would cause a student not to become attentive could be as a result of what was happening around them. If it concerned them, then it affected them. Additionally, Osborn et al. (2020) also complained that depression among adolescents living in Kenya had portrayed cognitive anxiety symptoms which made their daily operations difficult. The study associated anxiety symptoms such as engaging in conflicts with others due to low self-esteem, causing unrest and poor performance in school.

The second question inquired on the ways through which secondary schools used to treat depression cases linked to executive functions. The principals and counseling teachers indicated that they observed and singled out cases. Observation process takes quite some time since the teachers have to be careful that they do not intrude in the personal spaces of the students. Additionally, while students note that they are being observed, they tend to behave in a way that they portray best behaviors. Therefore, the respondents mentioned that the teachers have to make it a routine in their day to day lives. Later, they offer guidance and counseling as a way of verifying that indeed it is a true case of

depression due to executive functions. Once teachers discover that there may be traces of depression, they actually call upon the student and offer word of mouth counseling.

It becomes more of an interview to understand if the students know that they have executive functioning disorders and how long it has been going on. When the information is captured by the teachers, they begin intervention measures such as extra tuition and assignments. This is whereby teachers have to be sure that they are not dealing with a common problem. Closer examination of the student is done through issuing them with various tasks that substantiate that indeed the disorder is either present or simply the student is just lazy. If the intervention measures are not working, the student is linked with external psychologist who may recommend medical treatment after further assessment. The respondents named several psychologists registered within Meru County health institutions that they could refer the students to.

Further, Palpacuer et al. (2017) examined the meta-analysis of 84 studies on the most suitable interventions for depression. The study paid attention to psychotherapeutic intervention measures. According to Palpacuer et al. (2017), it takes specified steps before engaging in the psychotherapeutic such as observation and counseling to nurture improvements. The observer has to be ascertained that indeed the patient is suffering from executive function disorders and not any other symptoms.

The third question inquired on provisions put into place to help students who come from poor backgrounds to prevent them from getting mental distress. The principals and counseling teachers indicated that the school links students with private sponsors, bursaries from the government, personal donations, easing the fee payment plans so that

parents are able to distribute the whole school fee over the term. The respondents were categorical on how each of the source of funds worked. For example, schools' management linked students with alumina who would wish to offer financial support to mentor the needy students.

Additionally, money in form of educational aid from the government as otherwise referred to as bursaries was issued to the students who applied and indeed came from poor backgrounds as verified by local chiefs. Further, teachers, non-teaching staff, parents and BOM members would contribute from time-to-time monetary support to bright students with great potential in academics but came from poor families. At times the school management would allow parents to pay school fees in installments that would allow them pay comfortably. Other schools even allowed goods in kind and services that parents or guardians would offer to the school such as bringing maize, beans, supplying firewood, repairing desks and beds which was equated to some amount of school fees.

In addition, an interviewee named '1' was quoted saying that,

*“We also have a way that poor parents who cannot raise fees are allowed to offer goods in kind or services to the school.”*

Therefore, these ways of funding education enabled students attend classes and do examinations with less stress as compared to when they were required to raise thousands of school fees which was not available. It was therefore appropriate for schools to offer reliable support at continued timelines in different cycles till every poor child completes school for a brighter future. In relation, to alternative of funding of student's education, the results indicated that schools have used different ways and sources to ensure that the

students remain in school. This involves consulting from not just the government but also corporates and individuals that could come in handy to offer financial support. A past study by Culbreth et al. (2018) also revealed that Ugandan youths in schools were contemplating committing suicide since they could not afford fees and other personal items needed during learning. This meant that they would eventually drop out of school hence a cycle of poverty and living in the slums. Nevertheless, mental distress was to some extent eliminated since the school offered to connect them with government sponsorships in bid to completing school.

The fourth question inquired on the school partners that help in case of serious cases of memory loss. The principals and counseling teachers indicated that they have a partnership with the Meru branch of Red Cross society of Kenya, Meru level 5 hospital, psychologists in Meru County, Methodist Treatment Center and St. Nicholas rehabilitation center. The respondents indicated that the above-named institutions either offered subsidized service to students or simply free of charge. For example, Red Cross Society of Kenya was considered one institution that offered free service to most basic cases of executive function disorders. Therefore, most schools viewed this method as appropriate since it was an entire effort from the management of the school at times without necessarily involving parents. Parents were only involved when cases were severe such as when students were mentally unstable to a point that they had to be attended to by a psychologist or be taken to be hospitalized for specialized treatment.

The fifth question inquired on policies that were in place to protect students from excess and corporal punishment which could be harmful to their physical and mental health. The principals and counseling teachers indicated that they were closely guided by the ministry

of education policy on what constituted excess punishment. However, they had created special policies such as a teacher should not beat, pinch or scratch a student but give them alternative forms of punishment; when the offense conducted by the student was major such as evidence of burning and destroying school property, stabbing or causing bodily harm or even killing each other; it should be reported to the police and parents are always notified through text messages and phone call on any indiscipline cases of their children. Corporal punishment is one of the challenges secondary schools have encountered. This is because the African traditional system believed that children required corrective measures such as some beating when they made mistakes.

This notion has been transferred to schools since in secondary schools; there are adolescents who have just graduated from being children. Therefore, the respondents complained that the teaching population was torn in between maintaining African traditions and keeping the law. There have previously been cases of excess use on corporal punishment to a point where students get physical injuries and mental distress. Therefore, apart from being politically instigated, psychologically, it has very serious mental consequence to students especially when the excessive beatings are prolonged or are dangerous. For example, when a teacher punches a student, he or she could actually get harmed not only physically but also have serious mental breakdown. The respondents indicated that though the adolescents may have big bodies, they are still very young to undergo extreme punishments and what they require is being guided in love.

In addition, an interviewee named '9' was quoted saying that,

*“Teachers are advised that when punishing a student, they should mind their wellbeing hence inflict minimum pain through alternatives forms of punishment.”*

A study by Wambua et al. (2020) complained that most adolescents had reached the extremes of undertaking psychotherapies due to significant impact on their mental health caused by brutal beatings in schools. These brutal beatings not only affected the adolescents physically but left a huge mental issue. According to Wambua et al. (2020), punishing adolescents naturally triggers low self-esteem issues and doubt on their abilities. There was therefore need to recheck how punishment was administered in secondary schools.

#### **4.10 Model Summary of Executive Functioning Disorder**

The study model summary analysis to ascertain the percentage level of influence that executive functioning disorder had on vulnerability to depression. The outcome is shown on Table 4.21.

**Table 4.21**

*Model Summary of Executive Functioning Disorder on Vulnerability to Depression*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.943 <sup>a</sup>	.890	.831	2.85403

a. Predictors: (Constant), Executive Functioning Disorder

The results in Table 4.21 indicate that the R value was 0.943 and the R-square was 0.890. This meant that executive functioning disorder had an 89% influence on vulnerability to

depression whereas 11% was as a result of other factors not addressed in the study. These results show that executive functioning disorder is a very integral part of cognitive deficit and which could easily lead to depression. It was noticed that executive function disorder could be easily triggered by mocking and interfering with personal space of students.

However, it is important to note that most students experiencing executive function disorders were easily disturbed by irrelevant things hence ending up over-thinking and remaining absent minded. For example, when they were reprimanded by teachers or school prefects, they tended to assume it was personal and hence activating the defensive mode which had previously led to insults or fights with the concerned party. Additionally, the absent mindedness could happen anywhere such as in class, dormitory, assembly or dining halls. This is where you could find a student staring at something for a long time for no reason. This made management of time an issue which was often misinterpreted by other students or teachers.

This lack of awareness was caused by unavailability of systems and communication channels that students suffering from cognitive deficits could speak up on to get help. A study by Hale et al. (2020) analyzed various cognitive deficits trends over 18 years till 2014 in America. From the analysis, the study found out that the main issue with executive function disorder was lack of awareness made on mental health issues and systems on cognitive deficits making students unable to multitask manage time and lack attention.



#### 4.11 ANOVA of Executive Functioning Disorder

The study's null hypothesis indicated that executive functioning deficits have no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya. To make a decision to accept or reject the hypothesis, the study conducted ANOVA analysis. The outcome is shown in Table 4.22.

**Table 4.22**

*ANOVA of Executive Functioning Disorder on Vulnerability to Depression*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113.090	1	113.090	13.884	.000 <sup>b</sup>
	Residual	1156.660	365	8.145		
	Total	1269.750	366			

a. Dependent Variable: Vulnerability to Depression

b. Predictors: (Constant), Executive Functioning Disorder

The significance value of Table 4.22 was 0.000 hence below 0.05 which indicates statistical significance. This made the study reject the null hypothesis that executive functioning deficits have no statistically significant effect on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. Rejection of the hypothesis is also similar to saying that executive functioning deficits have a statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya. What this meant was that when a student has a mental condition that affects how they perform various basic roles that enable them to achieve their objectives in life, it may increase their vulnerability to depression.

That is, students may feel discouraged when they are not able to multitask, manage time, recall, control their emotions, have limited organizational skills, and have inadequate ability to process information. According to Harrison et al. (2021), South African adolescents have been experiencing prolonged discouragements that have led to depression. The discouragements have been majorly caused by stress in coping with school life. Adolescents were finding difficulty in performing basic executive tasks such as remaining attentive, understanding their emotions and remembering what they were taught. As a result, this put their mental health at risk since their psychological strengths were at crossroads.

#### **4.12 Analysis of Language-Based Learning Disorder**

Language-based learning disorder had constructs such as expressive language disorder, verbal and non-verbal information comprehension, reading (dyslexia), writing (dysgraphia), arithmetic ability (dyscalculia), and non-verbal communication. The study administered questionnaires and interviewed respondents. The questionnaires were answered by Mathematics and English teachers, while the interviews were conducted on principals and counseling teachers. The questionnaire had five-point Ordinal Likert Scale of between 1-5. Where; 1-strongly disagree; 2- disagree; 3-neutral; 4- agree and 5-strongly agree. The outcome is shown in Table 4.23.

**Table 4.23***Language-Based Learning Disorder on Vulnerability to Depression*

<b>Statements N=144</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Median</b>
Early correction of expressive language disorder	2(1%)	1(1%)	0(0%)	17(12%)	124 (86%)	<b>5.00</b>
Awareness on information comprehension impairment	74(51%)	70(49%)	0(0%)	0(0%)	0(0%)	<b>2.00</b>
School clubs to help in flourishing speaking abilities	0(0%)	19(13%)	0(0%)	73(51%)	52 (36%)	<b>4.00</b>
Study groups to improve reading and also non-verbal disorders	0(0%)	9(6%)	0(0%)	73(51%)	62 (43%)	<b>4.00</b>
Students allowed to attend symposiums and debates	0(0%)	6(4%)	0(0%)	74(51%)	64 (44%)	<b>4.00</b>
Learning to improve writing	0(0%)	16(11%)	0(0%)	70(49%)	58 (40%)	<b>4.00</b>

According to Table 4.23, 124 (86%) Mathematics and English teachers strongly agreed that their schools had a conducive learning environmental such as friendly teaching staff

which influences early correction and treatment of language impairment of the adolescents such as expressive language disorder. Nevertheless, 74(51%) strongly disagreed and 70(49%) disagreed that there were constant awareness programs run in the school to improve knowledge on verbal and non-verbal information comprehension impairment in languages so as to avoid discrimination and mocking by other students. This meant that the schools lacked adequate financial resources, skilled language experts, and commitment towards establishing a system in creating awareness on impairment of language. In terms of financial resources, the respondents pointed out that money was required to acquire learning materials and other commodities. In terms of skilled language experts, the study noted that there may be enough money but very few or simply no language expert.

The few experts available may have been overcommitted in other duties to a point that an appointment with them took ages to materialize. In terms of commitment towards establishing language awareness' system, the study gathered that a lot needed to be done since the schools lacked enough motivation to always emphasize on the need of students speaking up. From one perspective, it was clear that the need for creating systems was encountered with the challenge that even though the teachers would note students' needs what help would they give these particular students? The results were consistent with the ones found out by Hobson and Bird (2019) that impairment of language was a rising concern among the school going adolescents.

The study looked into strides made on awareness programs across different institutions. Among the institutions put under perspective included secondary schools where significant gaps were pointed out on low preparedness of the schools to correct the

language disorder on time. In relation to the current study, the lack of enough motivation by the schools to students was found out to undermine the need for students speaking up.

The researcher also interviewed various respondents such as principals and counseling teachers who were named as 1 to 47. The first question inquired on the challenges that had been experienced by student who had language impairment. The principals and counseling teachers named,

*“low self-esteem, attempted suicidal cases, fighting with fellow students, and increased immoral behaviors such as abuse of drugs and risk sexual behaviors”*.

The respondents were keen to note that language was the door to communication on what one desired to happen to them or someone else. The aspect of not being able to do so, could cause serious depression issues particularly when the subject was still young of age. At the age of adolescence, a lot of changes are happening to a student’s body which is actually the first concern most of them have. Apart from that, when an adolescent discovers that they cannot talk like others do, it may push them to have low motivation, lack the meaning in life and engage in illicit behaviors just to fit in. When other students point out this weakness, the student suffering from language-based learning disorder may result to self-defense hence fighting with anyone that tries to see them different. In addition, an interviewee named ‘31’ was quoted saying that,

*“Students with language-based learning impairment issues have challenges such as aggressiveness towards teachers especially when they are tasked to communicate through talking”*.

In relation to this response, it was gathered that when teachers tasked the adolescent experiencing language impairment, it created room to expose their weakness. Therefore, the victims result to becoming aggressive to the teachers rather than undergoing the process of bullying in class. It is therefore vital for teachers to keenly observe and understand the reasons behind any aggressive behavior. This is because, the teacher may punish the student whereas they are just avoiding at all costs becoming victims of ridicule and mockery. In relation to the findings, a past study by Chung et al. (2020) also discovered that when people suffering from dysgraphia and unable to write, they became either excessively aggressive or had a drop in their self-esteem which exposed them to depression. This was because they felt exposed on their weakness which was not common with other normal people.

The second question inquired on the language impairment specialists that the school had partnered with for the purposes of treating students. The principals and counseling teachers indicated that they mainly consulted Jordan hospital, Harmony therapy, Meru Level 5 hospital and psychologists in Meru County for psychological services and rehabilitation center in cases of extreme circumstances. As noted here, the only public institution was the Meru Level 5 hospital. This was because; the issue of language-based learning impairment among students and the general public had not yet reached the extreme levels. Therefore, the respondents advised that as low as cases of language-based learning impairments might seem, if not well handled at initial stages, they would result to hazardous cases affecting both the person battling the condition and those living with them. Therefore, the respondents complimented the private sector for identifying the need and stepping up to solve the mystery of language impairment.

However, since private sector solution comes with a cost, it may be too high for an average student and secondary school to afford payments. A report by NCPD (2017) and United Nations Adolescents' Fund (2017) named Kenyatta National hospital as a health institution that could be used to treat various cognitive deficits among adolescents and youths in Kenya. Nevertheless, the studies established that Kenyatta National hospital was more of a referral hospital which handled language-based learning impairment cases that had gone over-board referred from other hospitals. However, it is worth to note that language-based learning impairment cases were noted to be on the rise and this elicited the need for this study.

The third question inquired on ways through which awareness on language impairment was raised in the school. This was because for the effect of language-based learning disorder to be known, there was need to look into what was already done as far as intervention was concerned, what and why it was not working. The principals and counseling teachers named posters, banners, direct talk from teachers to students during school assemblies and through specialist talks when they visited the schools. The respondents elaborated further that in some secondary schools, they had at least 3 weeks in each term as a way of raising awareness on mental health. During this week, discussions revolved around abuse of drugs, indiscipline, reading, writing and talking challenges that students faced. Therefore, it was clear that schools had developed customized ways of dealing with mental health challenges. The respondents further revealed that during the mental health week, various talks were done by teachers, peer-to-peer and groups and on some occasions, specialists in mental health such as psychologists. For example, an interviewee named '43' was quoted saying that,

*‘‘We have several posters pinned on the notice board and magazines that student read to understand what language impairment is all about.’’*

This means that the schools had actually identified that there was a problem related to language-based learning impairment warranting sensitization. The respondents revealed that treating language impairment was a secondary problem; the primary problem was to ensure students suffering from the condition were speaking out. The society has brought up children in an environment whereby when one is not able to do what others can, they are labeled as handicapped. Therefore, since many students would not want to be labeled as such, they side play their language-based learning impairment issues compensating for it with indiscipline activities.

However, the few students that make a decision to open up get help and the problem is eventually solved. That notwithstanding, there are students who would not even dare speak of the issue since they know that treatment requires finances which are not available in the first place. The results by Darweesh et al. (2020) revealed that direct communication and special seating were some of the methods used in the Arabic training program as measures of raising awareness and when testing dysgraphia among the adolescents in Egypt.

The fourth question inquired on which government programs had been initiated in the schools as a way to boost awareness and timely treatment of language-based learning impairment. The principals and counseling teachers indicated that this was not yet available. However, there were policies that guided the school management on what to do in the event they came across such a scenario. It was a sad phenomenon for respondents



to admit that way. This is because after the sensitization made by the study; it was clear that there was a bone of contention as far as language-based learning impairment was concerned. It was evident that little was being done by the government to curb the vices as far as programs were concerned. That notwithstanding, the government had provided policies that provided the general direction on any rise of language impairment cases. For example, some of the government policies provided contact to government psychologists that would provide help in case a report of the same was required. However, most of the cases identified within the secondary schools were minor issues which required local experts rather than escalated attention.

The fifth question inquired on the common causes of this particular type of deficit in the school. The principals and counseling teachers indicated that most students with such conditions were born with them. However, there were some few cases of trauma; the respondents seemed to have actually done some background check on few cases to come to this conclusion. However, cases on trauma were of great concern not only to the teachers but also the community at large. One practical example given was that when an infant was learning how to speak, they produced verbal sounds and words which may not make sense. To adults, this could be termed as noise but to the child, their brain is actually 'wiring' and 'coding' communication skills. The respondents indicated that when a parent keep on telling the child to stop making these sounds and words, eventually the child will stop due to fear. However, what the parent does not know is that the child's brain has been affected whereby flow of words is affected.

This is why you will find an adolescent stammering since their brain was not allowed to develop language commands as it should. The respondents further advised that in such

instances, it is less likely that an adolescent will be able to speak fluently. The respondents further contrasted this with the aspect or instances of beating infants and children. There are parents who actually who punish their children in a manner which is not commensurate to the mistakes committed. They hit them with objects on their head which was very dangerous. If the impact did not kill them, it made various cognitive functions such as language development problems. For example, a respondent reported that they have ever seen an adolescent who could not speak but could actually sing. When inquiry was made, the adolescent revealed that they have ever experienced thorough beatings from their step-mother who would occasionally knock their heads off. In relation to that, an interviewee named '15' was quoted saying that,

*“Students also get this language-based learning disabilities as a result of neglect from their family backgrounds.”*

The results on causes of learning disorders are similar as the one derived by Prunty and Barnett (2020) who found out that adolescents' ability to read, write and talk are due to significant impact of trauma they had ever encountered in their earlier years. The study discovered that they were unable to accurately and consistently shape and form letters due to an interference on their developmental coordination aspect.

The sixth question inquired on the interventions that the school had developed to help students with learning disorders. The principals and counseling teachers indicated that the school teachers encouraged group discussion, reading sessions especially of passages by all students, consistent and unique communication channels such as through posters, banners and sign posts for students to read on their own. The results on various

interventions used were consistent with Politimou et al. (2019) findings that as long as a person was born while being able to speak, any disorder that develops could be corrected through early interventions. These interventions include being encouraged to talk to others, reading and writing. These interventions would polish their speech and language skills to significant levels.

The seventh question inquired on the teaching methods used by teachers to help students improve learning disorders. Principals and counseling teachers indicated dictation on notes, speaking as they write on school board for students to read and write and correcting spelling mistakes when students speak or write in class. In a secondary school, when students were in form one, teachers actually wrote on the board and they verbally talked. Therefore, this helped the students who had just come from primary school transition to secondary school learning. However, in the second term of their first year, students were introduced to dictation. This was whereby the teacher did not write on the board but verbally read notes to them. Students were supposed to learn the art of listening carefully to be able to comprehend on what to write. From form two onwards till their final year, teachers assigned various reading and speaking tasks to all students.

This process equipped students who were developing the English and Swahili languages as taught in the Kenyan education system. When the students made errors, it was the role of the teacher to correct them so that whatever they were speaking made sense and was clear. Actually, a respondent named the set-books read in form three and four as an objective in equipping students with reading and comprehension skills. As the students were moving joining institutions of higher learning, they had already mastered the aspect of language. In addition, an interviewee named '27' was quoted saying that,

*“The teachers also occasionally use pre-recorded video tapes of an audio just as aired by KBC radio station on various secondary school subjects.”*

The respondents clarified further that pre-recorded video tapes enabled the students develop both their listening and speaking skills. This was because; the programs had instances where the students were given a chance to speak what they heard from the program. There were also instances where the students were given a chance to say various words to their friends which actually enabled the teachers to identify students that required further assistance. In relation to methods used to improve language disorders, Oyono et al. (2018) in Cameroon also had the same opinion that dictation, reading and writing were the most effective ways of ensuring that Yaoundé’s adolescents were able to learn and speak French language.

#### **4.13 Model Summary of Language-Based Learning Disorder**

The study conducted model summary analysis to ascertain the percentage level of influence that language-based learning disorder had on vulnerability to depression. The outcome is shown on Table 4.24.

**Table 4.24**

*Model Summary of Language-Based Learning Disorder*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.864 <sup>a</sup>	.747	.722	2.90400

a. Predictors: (Constant), Language Based Learning Disorder

The results in Table 4.24 indicate that the R value was 0.864 and the R-square was 0.747. This meant that language-based learning disorder had an 75% influence on vulnerability to depression whereas 25% was as a result of other factors not addressed in the study. The results indicated that when adolescents were not able to learn a language effectively due to a disorder related to their mental status, they were more prone to falling into depression. It was discovered that most secondary schools not only did not have adequate structures and resources, but also had minimal knowledge on the existence of such as condition. The data collected painted a picture of a community of schools that only knew that when someone could not speak, they were partially or fully deaf and dumb. However, scenarios such as an adolescent not being able to speak fluently a language was rare in the upper classes where they were located.

Most of the teachers often did not pay much attention to all students due to their huge numbers in classes. This could be viewed as an oversight from the ministry of education of overpopulating students in classes hence not all were adequately managed by their teachers as required. For example, if a class that was supposed to have fifty students had sixty students, it meant that the teacher would get a hard time trying to identify students with language-based learning disabilities. A previous study by Ooko et al. (2019) also found out that it was very hard in identifying and shaping students with reading disabilities in Kenyan schools due to their overpopulation in classes.

#### **4.14 ANOVA of Language-Based Learning Disorder**

The study's null hypothesis indicated that language-based learning disorder has no statistically significant effect on vulnerability to depression among adolescents in

secondary schools in Meru County, Kenya. To make a decision to accept or reject the hypothesis, the study conducted ANOVA analysis. The outcome is shown in Table 4.25.

**Table 4.25**

*ANOVA of Language-Based Learning Disorder*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72.234	1	72.234	8.565	.004 <sup>b</sup>
	Residual	1197.516	365	8.433		
	Total	1269.750	366			

a. Dependent Variable: Vulnerability to Depression

b. Predictors: (Constant), Language Based Learning Disorder

The significance value in Table 4.25 was 0.004 hence below 0.05 meaning the test was statistically significant. This made the study reject the null hypothesis that language-based learning disorder had no statistically significant effect on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. Rejection of the hypothesis was similar to saying that language-based learning disorder had a statistically significant effect on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. A concern noticed was that at times even when the teachers pointed out such kind of students; it became very hard for teachers to get further help since secondary schools operated with small budgets.

It would be very expensive requesting for psychologists to pay frequent visits to schools in a bid of identifying and examining further the identified students. Therefore, though the teachers came across such students with even more deteriorating conditions, it became very hard to help them seek further assistance due to financial constraints. A

previous study by Nathniel et al. (2020) pointed out that speech and language therapy for each adolescent was very expensive since it involved working with an expert for a prolonged period of time. The period of time varied from 3 months to one year which was also accompanied with costs in each therapy session. This meant that an average adolescent from a humble background was most likely going to either attend few while skipping some session or not attend any session all together due to unavailability of funds to pay for the therapy session.

#### **4.15 Analysis of Severe Disruption of Social Cognition**

Severe disruption of social cognition had constructs such as judgement and decision-making, attitudes towards people, collaborative reasoning, morality, and negative thinking. The study administered questionnaires and interviewed respondents. The questionnaires were answered by Mathematics and English teachers, while the interviews were conducted on principals and counseling teachers. The questionnaire had five-point Ordinal Likert Scale of between 1-5. Where; 1-strongly disagree; 2- disagree; 3-neutral; 4- agree and 5- strongly agree. The outcome is shown on Table 4.26.

**Table 4.26***Severe Disruption of Social Cognition on Vulnerability to Depression*

<b>Statements N=144</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Median</b>
Good social interactions are encouraged	16(11%)	65(45%)	0(0%)	63(44%)	0(0%)	<b>2.00</b>
Students practice social skills through dictation of words with their friends	14(10%)	59(41%)	2(1%)	63(44%)	6(4%)	<b>2.00</b>
Students are allowed to participate in intra classes and school writing contexts	19(13%)	15(10%)	22(15%)	29(20%)	59 (42%)	<b>4.00</b>
Teachers pay keen attention to bad behaviors	0(0%)	25(17%)	17(12%)	27(19%)	75 (52%)	<b>5.00</b>
Guidance and counseling to help students change their negative mindset	5(4%)	6(4%)	12(8%)	59(41%)	62 (43%)	<b>4.00</b>
School encourages collaborative reasoning by the students	40(28%)	27(19%)	17(12%)	25(17%)	35 (24%)	<b>3.00</b>



According to Table 4.26, 75(52%) mathematics and English teachers strongly agreed and 27 (19%) agreed that teachers paid keen attention to bad behaviors made by the students (mean of 5). However, 65(45%) disagreed that good social interactions were encouraged through awarding more marks on students who had performed well during co-curriculum activities. Additionally, 59(41%) disagreed that students practiced social skills through dictation of words with their friends in various subjects.

The results indicated that there lacked a system where co-curricular activities were recognized as part of examination. Therefore, schools allowed the students to undertake activities just as a way of satisfying an educational requirement by the ministry of education but not an examinable venture. It was further discovered that school did not have systems of sponsoring students who excelled in sports in their studies as it was a case in many other nations and especially in the West. Kamndaya et al. (2017) established similar results when they compared factors that affected mental wellness among adolescents in five different urban areas.

Among the urban areas included one in developed and the other one in developing nations. From the results, Kamndaya et al. (2017) established that adolescents in urban areas of the developed nations were exposed to more opportunities such as scholarships and sponsorships after they excelled in sporting activities. The scholarship programs were a way of encouraging students to give their all in all in both classes and out of class activities. In the long run, as the students were competing to get a scholarship chance, their mental health improved since it was exercised and as well as being given an opportunity to work in different settings and with different people.

Further on, the issue of dictation of words at peer level was not practiced at all since the main national examinations such as KCSE did not have such kind of examination. Therefore, schools did not put much emphasis on dictation of words to students since teachers were not enlightened on what dictation of words could do in a student's social cognition life. Past studies conducted by Kurt (2020) and Kaplan et al. (1983) emphasized on the relevance of naming tests (dictation) and development of cognition in a person's brain.

The researcher also interviewed various respondents such as principals and counseling teachers who were named 1 to 47. The first question inquired on the common causes of severe disruption in social cognition in schools. Principals and counseling teachers indicated that most common were traumatized childhood accidents and poor mental growth. In addition, an interviewee named '33' was quoted saying that,

*“We have cases where excessive bullying has pushed these students to social cognition since they completely enclose themselves in a cocoon where they are not subjected to mental harm.”*

According to Meyer and Ndeti (2016), mental health care system in Kenya has been funded through the government and non-governmental institutions to ensure its sustenance in quest of identifying various cases of trauma accidents and low mental growth among Kenyans population such as children, adolescents, youths and old people. Additionally, Mwiti (2020) also named trauma as the leading cause of social cognition issues among adolescents that were suffering from hearing impairments in secondary schools.

The second question inquired on the awareness that schools had developed to help students with severe disruption in social cognition. The principals and counseling teachers mentioned school assembly platform, peer to peer and motivational talks from concerned field. This means that the schools had already embraced the idea of mental aspect which is the social cognition. Schools relied mostly on local approaches to raise awareness among the students. This shows that the issue of cognitive deficits would be reduced significantly among students, if schools used various alternative means to ensure as many students, parents and the community at large are able to get information. A study in Kenya by Mwoma (2017) emphasized on usage of normal school meetings, friendly interaction between peers and talks with experts as some of the methods used in identifying and educating adolescents that were discovered to have special needs.

The third question inquired on the training methods used to train students with severe disruption in social cognition to help them improve or deal with the condition. Principals and counseling teachers mentioned group discussions, dictation of words at peer-to peer level, writing competition, symposia, science congress, and frequent counseling sessions by teachers during lessons as appropriate ones. Comparing the current study's results with the ones given by Niolaki et al. (2020) there is congruence because Niolaki et al. (2020) emphasized on how spelling single words could act as a predictor in improving social cognition among the adolescents.

The fourth question inquired on systems put in place by the schools that were used to find out and train students who had severe disruptions in social cognition in schools. The principals and counseling teachers named equipping of counseling departments with skilled counselors and training teachers on social cognition issues to act as ambassadors

when teaching in identification of students as critical. In addition, an interviewee named ‘9’ was quoted saying that,

*“We have open channels of communication where students are vigilant in identifying their fellow students struggling with the condition”*.

Osborn et al. (2020) expressed that students were finding it hard speaking out their psychosocial issues related to inability to freely interact with others. However, when students developed the attitude of caring, they would be able to notice any changes in their friends’ behaviors hence looking for help on time.

The fifth question inquired on co-curriculum activities that helped students develop their social interactions skills. The principals and counseling teachers named drama, school clubs, games, and science congress as some of them. The results were similar to the ones documented by Pile et al. (2020) that active engagement of adolescents in games and social groups were main interventions used to treat mental health conditions and improve social cognition among the young people.

#### **4.16 Model Summary of Severe Disruption of Social Cognition**

The study conducted model summary analysis to ascertain the percentage level of influence that severe disruption of social cognition had on vulnerability to depression.

The outcome is shown in Table 4.27.

**Table 4.27**

*Model Summary of Severe Disruption of Social Cognition on Vulnerability to Depression*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.854 <sup>a</sup>	.729	.713	2.90370

a. Predictors: (Constant), Severe Disruption in Social Cognition

The results in Table 4.27 indicate that the R value was 0.854 and the R-square was 0.729. This meant that severe disruption of social cognition had a 73% influence on vulnerability to depression whereas 27% was as a result of other factors not addressed in the study. Results indicated that the ability of an adolescent to use one's mental abilities and skills in interactions with other people was very important in dictating their vulnerability to depression. Therefore, the study found out that adolescents did not meet the threshold to initiate and maintain an interaction due to low self-esteem hence having negative attitude towards people as well as experiencing negative thoughts. The adolescents felt as if the other party thought lesser of them as people hence ending up blocking any chances of interacting with them. According to Woodhead et al. (2018), in the long-term, a community school ends up having students who do not value collaborative reasoning and had issues connecting with the ideas of others due to social cognition concerns.

#### **4.17 ANOVA of Severe Disruption of Social Cognition**

The study's null hypothesis indicated that severe disruption of social cognition had no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya. To make a determination to accept or reject

the hypothesis, the study conducted ANOVA analysis. The outcome is shown in Table 4.28.

**Table 4.28**

*ANOVA of Severe Disruption of Social Cognition on Vulnerability to Depression*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72.485	1	72.485	8.597	.004 <sup>b</sup>
	Residual	1197.265	365	8.431		
	Total	1269.750	366			

a. Dependent Variable: Vulnerability to Depression

b. Predictors: (Constant), Severe Disruption in Social Cognition

According to Table 4.28, the statistical test value was 0.004 hence below 0.05 meaning it was significant. This made the study reject the null hypothesis that severe disruption in social cognition had no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya. Rejection of the hypothesis is similar to saying that severe disruption of social cognition has a statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya. This meant that the ability to interact with others as an adolescent is an important way to attain both mental and physical wellness. However, if they are not able to do so, it may signal an underlying concern that needs to be addressed on time. A report by Center for Brain Health (2020) advises that mental health care begins from observation of social interactions patterns to keen neurological examinations.

#### **4.18 Analysis of Support System on Cognitive Deficits and Vulnerability to Depression**

Support system was an intervening variable with constructs such as conducive environment and psychosocial support. The study administered questionnaires and interviewed respondents. The questionnaires were answered by Mathematics and English teachers, while the interviews were conducted for the principals and counseling teachers. The questionnaire had five-point Ordinal Likert Scale of between 1-5. Where; 1-strongly disagree; 2- disagree; 3-neutral; 4- agree and 5- strongly agree as shown on Table 4.29.

**Table 4.29***Support System on Cognitive Deficits and Vulnerability to Depression*

<b>Statements N=144</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Median</b>
Teachers support students to read passages	3(2%)	14(10%)	0(0%)	28(19%)	99(69%)	<b>5.00</b>
Government has introduced comprehension strategies	0(0%)	10(7%)	2(1%)	16(11%)	116(81%)	<b>5.00</b>
Students ask questions on various school policies	27(19%)	97(67%)	0(0%)	18(13%)	2(1%)	<b>2.00</b>
Students are discouraged from bad behavior	10(7%)	27(19%)	1(1%)	68(47%)	38(26%)	<b>4.00</b>
schools allow students to interact with their peers	0(0%)	16(11%)	2(1%)	73(51%)	53(37%)	<b>4.00</b>
Caring culture on ensuring students are mindful to each other	11(8%)	30(21%)	4(3%)	72(50%)	27(18%)	<b>3.00</b>

According to Table 4.29, 99(69%) mathematics and English teachers, strongly agreed that teachers supported students to read passages in class so as to improve their reading skills and be able to know who had a reading disorder. Additionally, 116 (81%) teachers



strongly agreed that the government had introduced different learning comprehension strategies used such as random assessments to ensure that students understood and supported their learning process. Nevertheless, 97(67%) of Mathematics and English teachers disagreed that students had a chance to ask questions on various policies implemented by the school management as a way of ensuring that school supports them in the best way possible.

The result indicate that the management did not involve students in policy development process nor were they required to critique once it was put into place. They were to accept and follow the policies as they were where any deviation would lead to stipulated punishments. This shows that there was a disconnect between the management of the school and the student's body since the former viewed the latter as lesser subjects as far as policy implementation was concerned. Therefore, when students realized that they were not that important in basic processes, they ended up feeling as though the management did not support them thereby not speaking up just in case they suffered cognitive deficits in their school life. A past study such as Green et al. (2020) elaborated the relevance of psychological support which began from basic processes till complicated ones as long as they involved the student's life. In a bid to examine the issue, Green et al. (2020) admitted that failure to allow youths get involved in processes such as policy formulation and implementation may lead them to feeling inadequacy of support which is a recipe for depression.

The researcher also interviewed various respondents such as principals and counseling teachers who were named 1 to 47. The first question inquired on the challenges related to depression that had been experienced by students who came from dysfunctional families.

The principals and counseling teachers indicated that they were always remorseful, lacked guardian to consistently pay school fees, got physically and sexually abused, lacked motivation to study hard since there was no role model to follow at home, and were always stressed on how they would cope with school-home lives. Elsajed and Aleshly (2021) discovered that many adolescents in school experienced cases of physical abuses by family members.

The second question inquired on the government entities and specialists that the school had partnered with for purposes of monitoring various students with cognitive deficits. The principals and counseling teachers indicated that they worked with Meru level 5 hospital psychiatrist departments. The third question inquired on ways through which awareness was raised in the school towards helping students identify various support systems at their disposal. The principals and counseling teachers named school clubs, assemblies, and class meetings. Schools had allowed students with common goal to form groups titled as clubs, movements and societies. The clubs revolved around environment, health, interactions and academics. Students were able to express their disappointments and happiness through these groups. In addition, an interviewee named '14' was quoted saying that,

*“The school encourages students to have friends in whom they can share anything disturbing their mental health”.*

The results presented by Guessoum et al. (2020) indicated that adolescents were experiencing lack of support during covid-19 because they did not get a chance to interact with their friends during class meetings or school clubs. This disparity resulted to further

deterioration of cognitive disorders. The more the students remained locked, the higher the chances of their cognitive disorders resulting to psychiatric issue.

The fourth question inquired on qualifications that the teaching staffs had to possess so as to teach extensively and help students avoid depression. The principals and counseling teachers indicated that they were guided by the ministry of education requirements such as a bachelor's degree in education and 3 years of teaching experience. In addition, an interviewee named '30' was quoted saying that,

*“We also prefer teachers who have done counseling psychology certificate or a diploma since it comes in handy in sorting these issues.”*

Findings by Mwingirwa (2016) agreed with the results of this study that when Igembe secondary schools employed qualified teachers who were also qualified in counseling, they were able to support the myriad of cognitive deficit issues affecting students. The fifth question inquired on the educative materials around schools that students used to know the various initiatives developed by the government towards education. The principals and teachers named newspapers, newsletters and government publications on education. A report by Ministry of Education-Kenya (2016) revealed that the government was committed to ensuring that everyone interested got to know various education initiatives made through print and online media. Under the print media, the report named newspapers and government publications.

#### 4.19 Model Summary of Support System on Cognitive Deficits and Vulnerability to Depression

The study conducted model summary analysis to ascertain the intervening percentage that support system had on cognitive deficits and vulnerability to depression. The outcome is shown in Table 4.30.

**Table 4.30**

*Model Summary of Intervening effect of Support System on Cognitive Deficits and Vulnerability to Depression*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.850 <sup>a</sup>	.722	.703	2.82207
2.	.864 <sup>b</sup>	.746	.737	2.84115

a. Predictors: (Constant), Severe Disruption in Social Cognition, Language Based Learning Disorder, Executive Functioning Disorder

a. Predictors: (Constant), Support System, Severe Disruption in Social Cognition, Language Based Learning Disorder, Executive Functioning Disorder

According to Table 4.30, when support system was not included in the relationship between cognitive deficits and vulnerability to depression, the R-square value was 72%. However, when the support system was included in the relationship, the R-square was 75%. This implies that support system had a 75% variability on cognitive deficits and vulnerability to depression. Additionally, when support system was not present, students with cognitive deficits were 3% more vulnerable to depression. However, when there was a support system, students with cognitive deficits were 3% less vulnerable to depression.

Nevertheless, support systems were discovered to vary among schools. There were secondary schools that had enacted reliable support systems to their students such that when cases of cognitive deficits were traced, they would offer intervention measures early enough to correct the problem. However, most secondary schools in Igembe North Sub-County were discovered to lack reliable support systems that would counter attack the problem with cognitive deficits on time. These findings were consistent with those of Mwoma (2017) who found out that there was a positive influence of social support on cognitive deficits and vulnerability to depression. However, there were inadequate educational support systems for adolescents having special needs related to their cognitive abilities.

#### **4.20 ANOVA of Support System on Cognitive Deficits and Vulnerability to Depression**

The study's null hypothesis indicated that support system has no statistically significant intervening effect on both cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. To make determination to accept or reject the hypothesis, the study conducted ANOVA analysis. The outcome is shown in Table 4.31.

**Table 4.31**

*ANOVA of Intervening effect of Support System on Cognitive Deficits and Vulnerability to Depression*

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	154.780	3	51.593	6.478	.000 <sup>b</sup>
	Residual	1114.970	363	7.964		
	Total	1269.750	366			
2	Regression	162.902	4	38.725	4.828	.001 <sup>b</sup>
	Residual	1106.848	362	8.020		
	Total	1269.750	366			

a. Dependent Variable: Vulnerability to Depression

b. Predictors: (Constant), Severe Disruption in Social Cognition, Language Based Learning Disorder, Executive Functioning Disorder

c. Predictors: (Constant), Support System, Severe Disruption in Social Cognition, Language Based Learning Disorder, Executive Functioning Disorder

According to Table 4.31, the statistical test value was 0.001 hence below 0.05 meaning it was significant. Therefore, when support system moderated the relationship between cognitive deficits and vulnerability to depression the significance level was 0.001. This made the study reject the null hypothesis that support system had no statistically significant intervening effect on both cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. Rejection of the null hypothesis was also similar to saying that support system had statistically significant intervening effect on both cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

#### 4.21 Multiple Regression on Cognitive Deficits and Vulnerability to Depression

The study conducted multiple regression analysis on cognitive deficits and vulnerability to depression. The study conducted model summary, ANOVA and regression coefficients analysis.

##### 4.21.1 Model Summary of Cognitive Deficits and Vulnerability to Depression

The study conducted model summary to ascertain model summary of cognitive deficits and vulnerability to depression. The outcome is shown on Table 4.32.

**Table 4.32**

*Model Summary of Cognitive Deficits on Vulnerability to Depression*

Model	R	Adjusted R Square	Std. Error of the Estimate
1	.864 <sup>b</sup>	.746	2.84115

a. Predictors: (Constant), Support System, Severe Disruption in Social Cognition, Language-Based Learning Disorder, Executive Functioning Disorder

The results on Table 4.32 indicate that the R value was 0.864 and the R-square was 0.746. This meant that cognitive deficits had a 75% influence on vulnerability to depression whereas 25% was as a result of other factors not addressed in the study. The results show that depression among the secondary school going adolescents could be highly pegged on cognitive deficits such as severe disruption in social cognition, language-based learning disorder and executive functioning disorder.

Therefore, the school community needs to come up with better strategies of identifying the traits of cognitive deficits among students and hence implementing corrective

measures that could reduce the detrimental effects over long-time. What was keenly observed was the low awareness on the existence of cognitive deficits in the first place among teachers and students. According to Ayano et al. (2021), the students were labelled as simply failures when they could not achieve the desired pass marks without necessarily distinguishing what was causing them not attain the pass marks.

#### 4.21.2 ANOVA of Cognitive Deficits and Vulnerability to Depression

The purpose of the study was to establish the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. To make a decision on establishing this effect, the study conducted ANOVA analysis. The outcome is shown on Table 4.33.

**Table 4.33**

*ANOVA of Cognitive Deficits on Vulnerability to Depression*

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	162.902	4	38.725	4.828	.001 <sup>b</sup>
Residual	1106.848	362	8.020		
Total	1269.750	366			

a. Dependent Variable: Vulnerability to Depression

b. Predictors: (Constant), Support System, Severe Disruption in Social Cognition, Language Based-Learning Disorder, Executive Functioning Disorder

According to Table 4.33, the significance test value was 0.001 hence below 0.05 meaning it was significant. This made the study reveal that cognitive deficits had significant effect on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. A past study by Fitzpatrick et al. (2017) established that depression was highly



affected by cognitive behavior among the young adults warranting delivery of cognitive behavior therapy.

#### **4.21.3 Regression Analysis of Effect of Cognitive Deficits on Vulnerability to Depression**

The study conducted a multivariate regression analysis to establish the relationship between vulnerability to depression as the dependent variable and its predictor variables.

The study's model was  $Y = C + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + R$ .

Where: Y = vulnerability to depression,

C = constant,

$\beta_i$  = coefficients to be estimated

$X_1$  = executive functioning disorder

$X_2$  = language-based learning disorder

$X_3$  = severe disruption in social cognition, and

R = support system (moderating variable).

The outcome is shown in Table 4.29.

**Table 4.34***Regression Coefficients of Cognitive Deficits on Vulnerability to Depression*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error			
(Constant)	12.524	2.637		4.749	.417
Executive Functioning Disorder	.248	.158	.207	2.569	.229
1 Language-Based Learning Disorder	-.017	.142	-.016	-.123	.112
Severe Disruption in Social Cognition	.133	.062	.175	2.127	.335
Support System	.095	.109	.093	2.874	.242

a. Dependent Variable: Vulnerability to Depression

According to Table 4.34, the coefficients of the model include: Vulnerability to depression =  $12.524C + 0.248 X_1 - 0.017X_2 + 0.133X_3 + 0.095X_4$ . That is, constant value is 12.524; executive functioning disorder is 0.248; language learning-based disorder is -0.017; social cognition is 0.133; and social system is 0.095. Therefore, since the p-values of all the variables were more than 0.05, they were significant but when combined, only executive functioning disorder was statistically insignificant. The results indicated that it was paramount that secondary schools understand that all cognitive deficits such as severe disruption in social cognition, language-based learning disorder, executive functioning disorder and an intervening variable such as support system, affect the vulnerability to depression among the adolescents.

Nevertheless, more emphasis should be taken to ensure that executive function disorders are rectified as soon as possible since they pose a higher challenge towards exposing the adolescents to depression. Any traits that are noticed on poor multitasking whereby students hardly keep track of what is expected of them and lack of management of time to enable them know where to be at what time, should not be taken for granted.

Additionally, when students struggle to remember things and controlling their emotions such that they do not do something more than it is required, should also be considered a red flag. Further, students that are messy or lack attention in class should also be noted. All these signs when monitored could provide more information on whether there are cases of cognitive deficits or not. Hale et al. (2020) also came to a conclusion that the inability of patients to perform various executive functions was considered to have grown over a period of time in America.

#### **4.22 Chapter Summary**

The chapter has provided various results closely guided by the study's data collection instruments. The study began by indicating the reliability test where results on pre-test study were provided. The study further indicated the number of study's respondents who agreed to take part in the study. The respondents' background information was provided where their working experience and academic qualifications were provided. Diagnostic tests were provided such as normality, linearity, multicollinearity and autocorrelation. The study's data qualified and satisfied all the tests.

The study provided results from teachers' questionnaire, interviews and students' questionnaire on the vulnerability to depression. Later on, the study provided MoCA test

results based on various diagrams responses and cumulative responses from the students who qualified to undertake the student depression assessment. Later on, the study provided executive function disorder variable results which included the descriptive statistics on questionnaires and interviews. Additionally, the model summary and ANOVA results were given. The same was repeated on the other three variables whereby individual variable's influence on the depression was ascertained. The chapter later combined all the variables to examine the multiple regression analysis aspects. Model summary, ANOVA and regression coefficient of the study's model was ascertained.

## **CHAPTER FIVE**

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

#### **5.1 Introduction**

The main purpose of this study was to establish the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. The specific objectives were; to examine the effect of executive functioning disorders on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya; to investigate the effect of language-based learning disorder on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya; to assess the effect of severe disruption in social cognition on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya; and to examine the intervening effect of support system on cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

#### **5.2 Summary of Results**

The study analysed collected data on MoCA Test results, vulnerability to depression, executive function disorders, language-based learning disorder, severe disruption of social cognition and support system.

##### **5.2.1 MoCA Test Results**

The study was able to gather that in terms of interpreting structures such as drawings, most students did not have any cognitive deficits. The drawings represented by trail drawing, cubes, clock and state the correct time was not a big issue. In terms of further

identification of drawings, the study found out that most students had no major issue in identifying animals such as lion, rhino and camel. However, the test of recall was not all that impressive since 64(27%) students were able to remember correctly the word face but when told to repeat after a while only 22(9%) were able to do so. This was observed in other words such as velvet, church, daisy and red. From the findings, most students did a lousy job in repeating the words as they were originally read with almost 60% of the students being unable to do so. This shows a concern on their ability to learn new words which would eventually constitutes to improved language and grammar.

The study went a step further to test the cognitive ability of the students in terms of numeric. They were given a set of numbers to repeat either forward or backward order. This test was able to get a lot of responses as indicated in Figure 4.4 of chapter four. In terms of interpretation and thinking capacity, the study ensured that there were similar words that would trigger thinking capacity by the students on coming up with answers. However, it was discovered that there were at least 34(14%) and 17(7%) who were able to critically think and come up with correct answers on what a train and a ruler meant. It was also vital to agree that at one point when students were asked to recall face, velvet, church, daisy and red as previously stated, almost all students were unable to do so with exception of 24(10%) at most recalling first word 'face' and 2(1%) recalling the last word 'red'. These findings insinuate that most students were either not attentive or simply could not remember which were both serious concerns of the study.

Other basic tests such as identifying the day, month, year, place and city were exemplary answered which proved that in as much as there were traces of cognitive deficits; it had not deteriorated to an alarming level. However, caution was to be exercised since lack of

any intervention would be a road map to alarming level. Further, based on the outcome, one hundred and seventy-five, 175(74%) students who undertook the MoCA test failed to reach the minimum threshold of 26 points and above. This meant that most students were able to cognitively process information to give it a meaning. Additionally, the students were able to comprehend non-verbal information such as animal identification. Nevertheless, students were not able to retain information for long hence a sign that the number of students suffering from cognitive deficits is indeed true. Further, the number of students able to pay attention was low signifying the probability of cognitive deficit issue. In addition, students struggled a lot in language skills since less than half of them managed to positively repeat sentences and indicate the similarity.

### **5.2.2 Vulnerability to Depression**

The study had questions in questionnaires and interviews that examined on vulnerability to depression. In the questionnaires, the most outstanding responses indicated that students were majorly dealing with temporary memory loss whereby they struggled remembering basic things and as well as stammering. These two issues were discovered amongst other parameters, to be leading as far as exposing students to depression were concerned. Actually, the study found out that memory loss had affected students to a point that most of them were involved in breaking school rules by carrying written materials in exam rooms. Other cases included misplacing their personal belongings and forgetting doing the assignments hence always becoming culprits of punishments. Additionally, the study also discovered that most students literary feared speaking to other students particularly when asked to do so during classroom meetings, assemblies

and dorm meetings. Considering the awareness levels on how to identify depression creeping among students, the findings showed that it was considered the norm and mostly laughed off. Lack of awareness was considered a catalyst to exposing students to depression either at mild or high levels.

The results from the interviews revealed that indeed students had already been exposed to depression which was noted to affect their school work, interaction with others, and abrupt lack of interest in sports and other co-curricular activities. From the few samples taken it was found out that these particular students were always angry with anyone intruding their spaces and others showed signs of being sad. When students felt that they could not take it anymore, they either missed or completely left school while others cried since nothing was working for them. It was true that the school administration had noted such cases with local remedies such as guidance and counselling offered to all students in general. This could be done in classroom meetings, assemblies and dorm meetings. To the specific students, the administration sought external help particularly the extreme cases. The help came in form of medical treatment for any major or minor cases of depression resulting from abuse of drugs and substances or any other threatening cognitive causes.

Students were assessed for depression using a depression assessment tool. From the findings, half of them admitted that they did not comprehend most of the things taught in class since they basically considered school work to be hard. They were however very much aware that this did not mean that they should engage in risky behaviours such as risky sexual behaviours, abuse of drugs and criminal activities. This is because; it would automatically make them drop from school which meant that they were worried if they



missed classes. The resultant effect was that students were in school just for the sake of it and considered it very boring and neither any of their friends was entertaining since bullying was rampant. Bullying was majorly considered mental abuse rather than physical abuse since bullies knew they would get away with it. The students felt as though in a prison since they were constantly being watched by their friends on any mistakes made. This therefore raised serious concerns for trust amongst students to a point of considering possibilities of remaining alone rather than speaking their issues out to anyone. Further on, the students also revealed that other issues that were constantly troubling them were school fees and peer pressure to leave school.

### **5.2.3 Executive Function Disorders**

The study had questions in the questionnaires and interviews that examined on vulnerability to depression. In the questionnaires, it was found out that school management was keen in ensuring that students did not undergo corporal punishment since it was illegal and also considered a causal factor in exposing students to cognitive deficits. As teachers administered beating to students, they would either instil excess fear to students or hit them in the head which would have brain damage in extreme cases. Further, schools' managements had raised awareness of how abuse of drugs and substances caused mental challenges like poor attention which definitely would affect their academic life in school. That notwithstanding, it was found out that schools systems were not yet secure enough for students to speak out when undergoing any physical or mental pain. This was mainly attributed to lack of secrecy among the staff hence when student's weaknesses were shared amongst staff, they were further humiliated in front of their friends.

This particularly happened a lot when the student was ever found out in wrong doing. For example, when a student is not able to submit their assignments on time, they got profiled based on their weaknesses which they secretly shared with a staff as they sought help. The study further found out that efforts had been made by the school to rectify the few areas on executive functioning disorders such as having awareness campaigns on identifying and educating students suffering from mental health issues such as poor multitasking, poor time management and lack of attention. The beauty of the awareness was that students were able to notice and help their fellows being absent-minded, multi-tasking and managing time. For example, they would always remind their fellow students to wake up early to prepare for the day.

On the interview results, principals and counseling teachers indicated that students with executive functions disorder got bullied, had low self-esteem, indiscipline issues such as fighting the students laughing at their weaknesses, and got low grades. The intervention measures implemented by the school included observing and singling out cases. Later, they offered guidance and counseling as a way of verifying that indeed it's a true case of depression due to executive functions. Intervention measures such as extra tuition and assignments are employed. If the intervention measures are not working, the student is linked with external psychologist who may recommend medical treatment after further assessment. These schools mainly relied on partnership with the Meru Branch of Red Cross Society of Kenya, Meru level 5 hospital, psychologists in Meru County, Methodist Treatment Centre and Rehabilitation Center and St. Nicholas rehabilitation center for psychological assessments, support and treatment.

If the student came from a poor background, the school linked students with private sponsors, bursaries from the government, personal donations, easing the fee payment plans so that parents are able to distribute the whole school fee over the term as their child undergoes intervention measures. To avoid inflicting more harm through punishments, schools were closely guided by the ministry of education policy on what constituted excess punishment. However, they had created special policies such as a teacher should not beat, pinch or scratch a student but give them alternative forms of punishment; when the offense conducted by the student was major such as evidence of burning, stabbing, or killing, it should be reported to the police; and parents are always notified through text messages and call on any indiscipline cases of their children.

The statistical findings on model summary revealed that the R value was 0.943 and the R-square was 0.890. This meant that executive functioning disorder had an 89% influence on vulnerability to depression whereas 11% was as a result of other factors not addressed in the study. The significance value was 0.000 hence below 0.05. This made the findings reject the null hypothesis that executive functioning deficits have no statistically significant effect on vulnerability to depression among adolescents in secondary school in Meru County, Kenya.

#### **5.2.4 Language-Based Learning Disorder**

The study had questions in questionnaires and interviews that examined on vulnerability to depression. In the questionnaires, the study found out that schools had employed various techniques in having conducive learning environment. These techniques ranged from having qualified and approachable personnel who would always be vigilant in

identifying, correcting and suggesting for further treatment of any LBLD on adolescents. That notwithstanding, it was ascertained that the issues on LBLD were not very well-known by the school communities. In as much as there were personnel who were prepared to help the students, others simply did not care and lacked capacity in this noble practice of helping the adolescents. It even became worse when students lacked this awareness. This made them laugh at every slightest mistake made by adolescents suffering from LBLD. Continuous laughter and mockery stressed the LBLD students and when done for an extended period of time, it led to depression. When the study inquired more on the awareness programs that were in place, it was found out that schools lacked adequate financial resources, skilled language experts, and commitment towards establishing a system in creating awareness on impairment of language by relevant professionals such as psychologists and language assessment experts.

The interview results indicated that students who had language-based learning impairments had challenges such as low self-esteem, attempted suicidal cases, fighting with other students, aggressiveness towards teachers and increased immoral behaviors such as abuse of drugs. To curb these challenges, schools invited specialists who directly talked to students during school assemblies and other during other organized forums. The main agenda of these talks was to create awareness and identify whether the types of language-based learning disorders experienced by students were types that they were born with, caused by traumatic experiences or were as a result of neglect during upbringing.

The school made efforts to implement intervention measures such as encouraging student group discussion; reading sessions especially of passages by all students; consistent and

unique communication channels such as through posters, banners and sign posts for students to read on their own; dictation of notes; teachers speaking as they wrote on school board for students to read and write; and teachers correcting spelling mistakes when students spoke or wrote notes in class. Schools also mainly consulted Karen hospital, Harmony therapy and Meru psychological services and rehabilitation center for extreme cases.

The statistical findings on model summary revealed that the R value was 0.864 and the R-square was 0.747. This meant that language-based learning disorder had an 75% influence on vulnerability to depression whereas 25% was as a result of other factors not addressed in the study. The significance value was 0.004 hence below 0.05. This made the findings reject the null hypothesis that language-based learning disorder has no statistically significant effect on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

### **5.2.5 Severe Disruption of Social Cognition**

The study had questions in questionnaires and interviews that examined on vulnerability to depression. In the questionnaires, the study found out that teachers were vigilant in noticing negative behaviours among adolescents. These behaviours were immediately corrected through various types of punishments ranging from cleaning classes, suspension, and expulsion among other methods. That notwithstanding, the study noticed that the school management lagged in encouraging students to practice social skills such as dictation of words with each other to stay away from trouble and improve academically. The results further implied that the ability of an adolescent to use one's

mental abilities and skills in interactions with other people was very important in dictating their vulnerability to depression.

The interview results indicated that the common causes of severe disruption in social cognition among adolescents in the schools were traumatic childhood, accidents, poor mental growth and excessive bullying. To ensure that there was awareness, schools used assembly platform, peer to peer and motivational talks from concerned field. In cases there were cases of severe disruption of social cognition, the school used intervention measures such as group discussion, dictation of words at peer-to peer, writing competition, symposium, science congress, drama, school clubs, games, and frequent counseling session by teachers during lessons. Schools also made efforts in enhancing the guidance and counseling departments to handle social cognition cases through equipping it with skilled counselors; training teachers on social cognition issue to act as ambassadors when teaching in identification of students; open channels of communication by students in case they identify their fellow students struggling with the condition.

The statistical findings on model summary revealed that the R value was 0.854 and the R-square was 0.729. This meant that severe disruption of social cognition had a 73% influence on vulnerability to depression whereas 27% was as a result of other factors not addressed in the study. The significance value was 0.004 hence below 0.05. This made the findings reject the null hypothesis that severe disruption in social cognition has no statistically significant effect on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

### **5.2.6 Support System**

The study had questions in questionnaires and interviews that examined on vulnerability to depression. In the questionnaires, the study found out that teachers had dedicated their time to support students in reading skills particularly when reading set-books. Further, the teachers worked with the approved government strategy of random assessments to ensure that students understood and supported their learning process. Nonetheless, it was established that students were not allowed to question nor offer any suggestion on any policy enacted by the school administration. This was rather odd since these policies were put into place to offer best support to the students over changing times. It was evident that some old policies did not work in the current times. For example, a policy in a Muslim secondary school forcing students to attend Islam prayers and way of life, when the constitution of Kenya dictates the freedom of worship. Further, the results implied that there were secondary schools that had enacted reliable support systems to their students such that when cases of cognitive deficits were traced, they would offer intervention measures early enough to correct the problem. However, most secondary schools in Igembe North Sub-County were discovered to lack reliable support systems that would counter attack the problem with cognitive deficits on time.

The interview results indicated that adolescent from dysfunctional families were always remorseful, lacked guardian to consistently pay school fees, got physically and sexually abused, lacked motivation to study hard since there was no role model to follow at home, and were always stressed on how they would cope with school-home lives. To ensure that the school offered relevant support to all students, school clubs, assemblies, class meetings, and peer to peer interactions were used as modes of promoting socialization

and enhancing psychosocial support. Further, the print media used were newspapers, newsletters and government publications on education matters. Additionally, teachers responsible for students counseling were qualified based on the guidelines by the ministry of education requirements such as having a bachelor's degree in education, 3 years of teaching experience, and an additional counseling psychology certificate or a diploma. When the cognitive cases required further assessment, the schools partnered with Meru level 5 hospital psychiatrist department to offer support and specialized care.

Further on, when support system was not included in the relationship between cognitive deficits and vulnerability to depression, the R-square value was 72%. However, when the support system was included in the relationship, the R-square was 75%. This implies that support system had a 75% variability on cognitive deficits and vulnerability to depression. Additionally, when support system was not present, students with cognitive deficits were 3% more vulnerable to depression. However, when there was a support system, students with cognitive deficits were 3% less vulnerable to depression. The significance value was 0.001 hence below 0.05. Therefore, when support system moderated the relationship between cognitive deficits and vulnerability to depression the significance level was 0.001. This made the findings reject the null hypothesis that support system has no statistically significant intervening effect on both cognitive deficits and vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

### **5.2.7 Model of the Study**

The results on study' model indicated that it was paramount that secondary schools understand that all cognitive deficits such as support system, severe disruption in social



cognition, language-based learning disorder and executive functioning disorder affected the vulnerability to depression among the adolescents. Nevertheless, any traits that are noticed on poor multitasking whereby students hardly keep track of what is expected of them and lack of management of time to enable them know where to be at what time, should not be taken for granted.

### **5.3 Conclusions of the Study**

This study generally concluded that cognitive deficits had significant effect on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. The conclusion on vulnerability to depression was that depression is still not a well-known topic. Schools could have acquaintance to the term but do not articulately understand how to identify a depression case. In the case of the students, it becomes even more challenging since most of them cannot see obvious shrugs hence generally thinking that depressed students are moody antisocial or basically pretending. Moreover, cases of cognitive deficits are not identified on time and when they do, there are no clear procedures on what to do to correct them.

The conclusion made on executive function disorder was that though there were awareness campaigns on mental health issues as a result of drug and substance abuse, there still lacked awareness made on mental issues due to cognitive deficits making students unable to multitask, manage time and lack attention. This lack of awareness was caused due to unavailability of systems and communication channels that students suffering from cognitive deficits could speak up so as to get help.

The conclusion made on language-based learning disorder was that schools lacked adequate financial resources, skilled language experts, and commitment towards establishing a system in creating awareness on language-based learning disorders. In terms of finances, it was very expensive requesting for psychologists to pay frequent visit to schools in a bid to identify and examine students further. Additionally, most of the teachers often did not pay much attention to all students due to their huge numbers of students in classes, time constraints to cover syllabus and work load due to limited number of teachers in many schools. This could be viewed as an oversight by the ministry of education of overpopulating students in classes, understaffing and congesting school calendars hence students' mental wellness is not adequately addressed as required by their teachers.

The conclusion made on severe disruption of social cognition indicated that there lacked a system where co-curricular activities were recognized as part of examination. Therefore, schools allowed students to undertake the activities just as a way of satisfying an educational requirement by the ministry of education but not an examinable venture. It was further discovered that schools had no system of sponsoring students who excelled in sports in education just like other nations were doing. Additionally, the dictation of words at a peer level was not practiced at all since the main national examinations such as KCSE did not have such kind of examination. Therefore, schools did not put much emphasis on dictation of words to students since teachers were not enlightened on what dictation of words could do in a student's social cognition life.

The conclusion made on support system indicated that the management did not involve students in policy development process nor were they required to critique once it was put

into place. They were only left out to accept and follow the policies as they were whereby any deviation would lead to stipulated punishments. This shows that there was disconnect between the management of the school and the student's body since the former viewed the latter as lesser subjects as far as policy formulation and implementation was concerned.

#### **5.4 Recommendations of the Study**

The study recommends that on vulnerability to depression, the government through the ministry of education should come up with training programs. These programs should equip both teaching and non-teaching staff with skills of identifying various causes of depression. The training should equip them with skills that not only look at the consequences of depression but also what triggers depression among the culprits. Taking this perspective would be cutting the tree by its roots rather by its branches. The management of secondary schools should use all possible means such as school assemblies, class meetings, school clubs, study groups and religious unions to sensitize students on what depression is all about and how students could identify a depression case. The class teachers should come up with local systems that involve students speaking under anonymity on any suspected cases of depression. This would enable students get help early enough when they are stressed rather than awaiting the case to deteriorate.

The study recommends that on executive function disorder, the management of schools should beef up on creating awareness of how mental issues can lead to drug and substance abuse by the students. There should be provision of finances by the ministry of education to schools to be able to have print media such as posters, magazines,

newsletters and pamphlets on what executive function disorders are how one can tell they suffer from them and the various treatment methods in place. Schools should promote an open policy whereby students can speak up when they seem to notice any signs of executive functioning disorders. The students' body should also cultivate a culture of caring among students so that they can help their peers who are struggling with issues such as multitasking, time management, memory, emotional control, organizational skills, processing information and paying attention. For example, when they notice their fellow students struggles managing time, they may come in handy and correct it before it escalates to something else.

The study recommends that on language-based learning disorder, the management of schools should device ways through which they could attract funds through local and international donors and sponsors. This would equip schools with finances to cater for specialists such or professionals to offer appropriate treatment for LBLDs. The ministry of education should advocate for more budgetary allocation so as to be able to construct more classrooms that can fit in substantive number of students. There should be considerations also done by Meru County government to allocate more financial support to secondary schools since it would enable the schools accommodate the high number of students from Imenti North Sub-County which happens to host the Meru County government headquarters.

The study recommends that on severe disruption of social cognition, ministry of education should consider developing policies that will include sports activities as part of the national examinations. This is whereby students get awarded marks for engaging in sports over a period of time trough sporting activities. Engagement in sport also helps

students to improve other aspects of their wellness such as physical and emotional. The ministry of education should also come up with policies that involve dictation of words as part of examination process. This is whereby students are examined both local and national examinations through dictation of words. It could be included in languages exams such as English and Kiswahili. Additionally, management of secondary schools in Imenti North should come together and begin programs that see to it that students who excel in sports or co-curricular activities get partial or full scholarships in schools. This would boost morale of students to engage in sports hence developing their mental capacities.

The study recommends that on support system, schools managements should allow students weigh in their opinion on new school policies. This would enable them feel as part of the institution and not just mere followers. In the long-term, students would feel more comfortable in sharing their cognitive disorders issues. The ministry of education should ensure that policy framework implementation involves all stakeholders hence leaving a window for opinion on what others think. This would not only make it better but also include wishes of everyone it concerns.

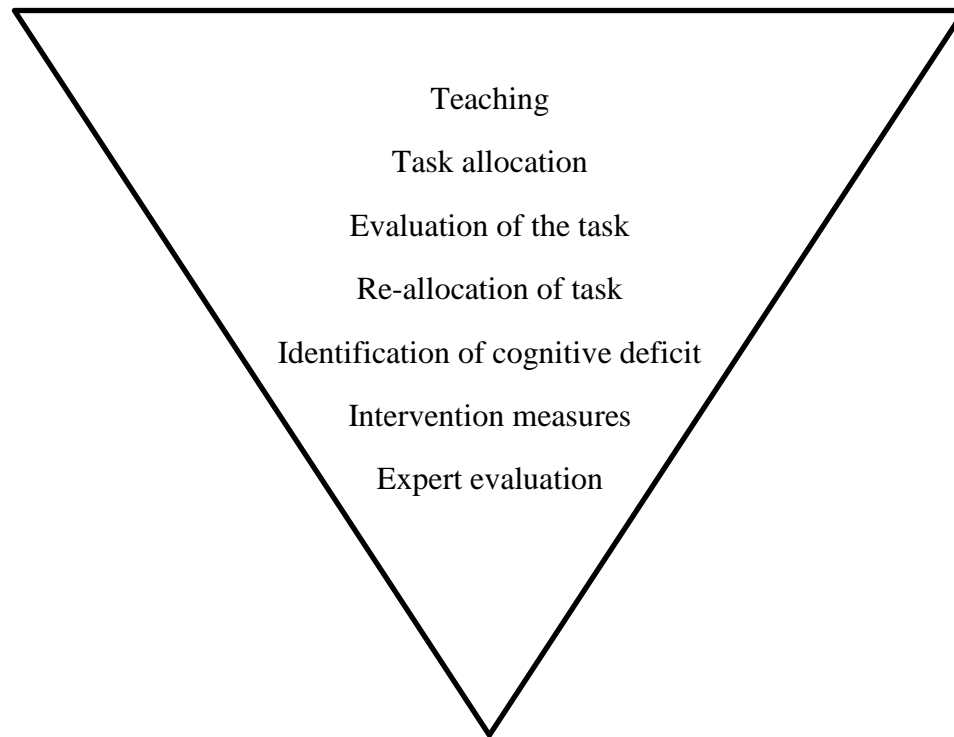
#### **5.4.1 Value of Study to Practice**

The study's contribution to practice entails providing a model from the findings of the study on procedure that could be used to identify cognitive deficit and intervention measures implemented without necessarily involving an expert at early stages. This is because, it was discovered that there were gaps towards identifying cases of cognitive deficits on time and when they occurred, there were no clear procedures on what to do to

correct them. The model involves seven stages that guide a person on how to undergo the process of identification as presented on Figure 5.1.

**Figure 5.1**

*Cognitive deficits Identification Model*



Source: Researcher 2022

According to Figure 5.1, the first stage involves general teaching. This is whereby a person intending to ascertain cognitive deficits teaches on any area of their choice. This stage is more of an introduction stage that enables the process of identification to have a basis. The second stage is a step that involves allocating different tasks to a group of people. The tasks include basic dictation, reading test arithmetic test and diagrams evaluation. It enables the group of people under assessment to get a chance to use their cognitive skills in performing various tasks. The third stage is a step of evaluating the

tasks accomplished. It enables the evaluators to identify people with cognitive deficits and the nature of their disorders.

The fourth stage involves allocating a second evaluation task only to the people suspected of battling cognitive deficits. This enables the evaluator to get a chance to confirm that the person in question did not do a mistake but rather they are genuinely affected by cognitive deficits. The fifth stage involves identifying which people have what type of cognitive deficits. For example; expressive language disorder, verbal and non-verbal information comprehension, reading (dyslexia), writing (dysgraphia), arithmetic ability (dyscalculia) and non-verbal communication. It will involve asking them directly on whether they have previously experienced the issue before in their lives or not. If the person in question is known to be experiencing any cognitive deficits, then the evaluator begins the journey of intervention measures.

The measures adopted will depend on the severity of the deficit and hence different approaches such as training on reading, writing and arithmetic to the dyslexia, dysgraphia, and dyscalculia respective patients, holding normal conversation and language therapists to the language disorder patients. The intervention stage should take a period of between one month and three months. The seventh and last stage involves the client being referred for further check-ups by experts for those who do not improve after intervention measures have been implemented in the previous stages.

## **5.5 Suggestion for Future Studies**

The study examined the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. Future studies should focus on other counties to check whether they will get similar or different results.

The current study also included various respondents such as principals/deputy principals, mathematics teachers, English teacher, students and guidance and counseling teachers. Future studies should extend and include other respondents such as Kiswahili teachers, humanities teachers and science teachers. This is because students could be exhibiting cognitive deficits in other subjects apart from English and Mathematics. Additionally, future studies should extend their work not only to adolescents but other groups of people such as the youth, old people and adolescents who have dropped from school. Further, the current study narrowed down to cognitive deficits such as executive functioning deficits, language-based learning disorder and severe disruption in social cognition. Future studies should consider other cognitive deficits such as dementia.

The study targeted secondary school adolescents' population creating a gap for further studies to examine other populations such as the youth. It would be relevant to examine how cognitive deficits among the youth in colleges, technical institutions and universities have exposed them to depression. This is because we have previously seen in social media and mainstream media of university strikes particularly related to hard examinations. For example, when Mount Kenya students went on strike due to a very hard examination issued in the year 2021 (MOE, 2021).



There is also need to not only examine preventive measures of cognitive deficits among the adolescents but also treatment solutions. Future studies should approach the whole phenomenon from creating and testing various experiments on both medical and psychological solutions of cognitive deficits. This is because the current study which was more of survey and not extended deep to conduct experiments, has pointed out that cognitive deficits are present among the adolescents. For example, future studies should conduct experiments by having two groups where one group is a control group. The control group is administered medication or offered psychological treatment while the other group does not, all in the bid to identify whether there would be any differences in the results.

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## APPENDICES

### Appendix I: Letter of Authorization

Date.....

To: Meru County director of education

: Meru County Commissioner

P.O. Box 2966-60200,

Meru-Kenya.

Dear Sir/Madam,

**RE: RESEARCH DATA ON EFFECT OF COGNITIVE DEFICITS ON  
VULNERABILITY TO DEPRESSION AMONG ADOLESCENTS IN  
SECONDARY SCHOOLS IN MERU COUNTY, KENYA**

I am a student pursuing Doctor of Philosophy in Counseling Psychology at Kenya Methodist University (KeMU). This is to kindly request for your permission to undertake research at various secondary schools on the above topic which is a partial fulfillment for the conferment of the PhD degree. My research topic is stated above and I am kindly requesting for your assistance in making my research a success.

The respondents will be school principals, Mathematics teachers, English teachers, head of guidance and counseling department staff and students with cognitive deficits such as executive functioning disorders, language-based learning disorder, severe disruption in social cognition, support system, and vulnerability to depression among adolescents in secondary schools in Meru County. I have attached a list of secondary schools that this study intends to collect data from with this letter. Thank you in advance.

Yours Sincerely,

**Kenneth Gitiye Kiambarua**

**School registration number: PSC-4-9659-3/2018**

**Mobile no: 0739836656**

## Appendix II: Letter of Consent

Topic: Effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya.

Serial no..... Sign.....

Dear respondent,

My name is Kenneth G. Kiambarua, a PhD student at the department of theology, religious studies and counseling, Kenya Methodist University (KeMU). I am carrying out this study for the fulfillment of the degree award of PhD in counselling psychology. I am requesting you to participate in this study by completing a set of questionnaires that ask about your social-demographic data and other set that measured whether you have ever seen an experience any of the symptoms and behaviors indicated on students.

I have developed the social-demographic questionnaire while the other instrument that you will complete is intentionally tested and has been used in several studies. Both questionnaires will take an average of 30 minutes to complete. This study has been approved by the necessary ethical bodies and by your school administration. However, your participation is completely voluntary and you may withdraw your participation if you feel like. I am requesting that, as you complete the questionnaire or get interviewed, kindly do so as truthfully as provided. Do not write your name on the questionnaire. Confidentiality will be ensured by serializing the questionnaires with an anonymous serial number.

Once you complete the questionnaire, fold it, staple and drop it in the box provided at the front of the hall. In case you are not willing to participate in the study, you are kindly requested to sit in with others for confidentiality purposes, staple it as well and drop in the box provided just like others the data will only be accessible to the researcher and for purposes of this study only. If in the process of completing the questionnaires or after the intervention you feel you have a personal psychological issue you wish to discuss with a professional psychologist/counselor, you may get to me or any of the research assistant for advises/referral.

The signing of the assent form and completion of the questionnaire will be taken as your consent to voluntarily participate in the study. If you need any clarification do not hesitate to ask me or any of the research assistants.

Thank you.

Kenneth G. Kiambarua (Tel. 0717249928)

PhD student- School of Education and Social Sciences

Department of Theology, Religious Studies and Counseling

**Appendix III: Interview guide for the Principal/ Deputy Principal and Counseling teachers**

This interview guide has been designed to collect data on the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. **Cognitive deficit** is an inclusive term used to describe impairment in an individual’s mental processes that lead to impairment in information processing including how an individual understands and acts in the world. They may include impairment in information processing, mental operation, or intellectual activity such as thinking, reasoning, remembering, imagining, learning, reading and speaking fluently.

**Depression** is the state of being sad and losing interest in activities that previously excited a person. Your participation and input will be highly appreciated. All information shared will be used solely for this study and treated with outmost confidentiality.

**SECTION A: BACKGROUND INFORMATION**

1. How long have you worked in this school in terms of years?

.....  
.....  
.....

2. What is your level of education?

.....  
.....  
.....

**SECTION B: EXECUTIVE FUNCTIONING DISORDERS AND  
VULNERABILITY TO DEPRESSION**

1. What are some of the challenges that have been experienced by students who suffer from various executive functions such as poor multitasking, poor time management, low memory poor emotional control, poor organizational skills, poor processing information and low attentiveness?

.....  
.....  
.....

2. What ways through which this secondary school uses to treat depression cases linked to executive functions?

.....  
.....  
.....

3. What are provisions put into place to help students who come from poor backgrounds to prevent them from getting mental distress?

.....  
.....  
.....

4. Kindly elaborate the school partners to help in case of serious cases of memory loss.

.....  
.....  
.....

5. Highlight policies that are in place to protect students from excess punishment which may be harmful to their physical and mental health

.....  
.....  
.....

**SECTION C: LANGUAGE-BASED LEARNING DISORDER AND  
VULNERABILITY TO DEPRESSION**

1. What are some of the challenges that have been experienced by students who have language impairment?

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.....  
.....

2. What are some of the language impairment specialists that the school has partnered with for the purposes of treating students?

.....  
.....  
.....

3. What are some of ways through which awareness on language impairment is raised in the school?

.....  
.....  
.....

4. Which government programs have been initiated in the schools as a way to boost awareness and timely treatment of the language impairment?

.....  
.....  
.....

5. What are the common causes of learning disorders in this school?

.....  
.....  
.....

6. What are some of the interventions that the school has developed to help students with learning disorders?

.....  
.....  
.....

7. Which teaching methods are used by teachers in this school to help students improve learning disorders?

.....  
.....  
.....

**SECTION E: SEVERE DISRUPTION IN SOCIAL COGNITION AND  
VULNERABILITY TO DEPRESSION**

1. What are the common causes of severe disruption in social cognition in this school?

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.....  
.....

2. What are some of the awareness that the school has developed to help students with severe disruption in social cognition?

.....  
.....  
.....

3. Which training methods are used to train students with severe disruption in social cognition improve?

.....  
.....  
.....

4. What system is in place that is used to know and train the students who have severe disruption in social cognition in school?

.....  
.....  
.....

5. Highlight the co-curriculum activities that help students develop their social interactions skills

.....  
.....  
.....

**SECTION F: SUPPORT SYSTEM AND VULNERABILITY TO DEPRESSION**

1. What are some of the challenges related to depression that have been experienced by students who come from dysfunctional families?

.....  
.....  
.....

2. What are some of the government entities and specialists that the school has partnered with for the purposes of monitoring students with cognitive deficits?

.....  
.....  
.....



3. What are some of ways through which awareness is raised in the school towards helping students identify various support systems at their disposal?

.....  
.....  
.....

4. What qualifications do the teaching staffs have to teach extensively and help students avoid depression?

.....  
.....  
.....

5. Describe the educative materials around the school that students use to know the various initiatives developed by the government towards education?

.....  
.....  
.....

**SECTION G: VULNERABILITY TO DEPRESSION**

1. What measures are put in place to shield students from being vulnerable to depression especially who may have gotten temporary loss of memory due to abuse of drugs hence unable to read and write examination answers?

.....  
.....  
.....

2. Explain how depression among students affects their performance?

.....  
.....  
.....

3. What are the signs that the school management looks for to notice a student's depression status?

.....  
.....  
.....

4. Highlight the measures that have been put into place to treat various types of depression in this school?

.....  
.....  
.....

5. What are procedures followed when assessing the general well-being of students from depression?

.....  
.....  
.....

**Appendix IV: Mathematics teachers, English languages teacher questionnaire**

This questionnaire has been designed to collect data on the effect of cognitive deficits on vulnerability to depression among adolescents in secondary schools in Meru County, Kenya. **Cognitive deficit** is an inclusive term used to describe impairment in an individual’s mental processes that lead to impairment in information processing including how an individual understands and acts in the world. They may include impairment in information processing, mental operation, or intellectual activity such as thinking, reasoning, remembering, imagining, learning, reading and speaking fluently. **Depression** is the state of being sad and losing interest in activities that previously excited a person. Your participation and input will be highly appreciated. All information shared will be used solely for this study and treated with outmost confidentiality.

**SECTION A: BACKGROUND INFORMATION**

1. What position are you currently holding in this secondary school?

.....  
.....

2. Please indicate your working experience in this school in years by ticking in the brackets?

Less than 1	<input type="checkbox"/>
1-2	<input type="checkbox"/>
2-5	<input type="checkbox"/>
5-10	<input type="checkbox"/>
10 and above	<input type="checkbox"/>

3. What is your level of education?

- Certificate
- Undergraduate
- Graduate
- Postgraduate

**SECTION B: EXECUTIVE FUNCTIONING DISORDERS AND  
VULNERABILITY TO DEPRESSION**

**This section has statements regarding executive functioning disorders such as low multitasking, poor time management, poor memory, lack of emotional control, poor organizational skills, inability to process information correctly and poor attention. Kindly respond with the response that matches your opinion. Please tick as appropriate in the boxes. 1-strongly disagree, 2-disagree, 3-neutral, 4, agree, 5-strongly agree**

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	The school is keen on ensuring that corporal punishment is not administered hence alternative ways so as to reduce mental effect such as executive functioning disorders					
2.	There is an awareness in school by the students on the mental effect of drug and substances abuse such as lack of attention which is an executive function disorder					
3.	Students are encouraged in class to write various literature writings on various titles such as events that happened in					

	their adolescent hood memories as a way to ensure they always remember their past memories and control emotions					
4.	There are systems in school for students to speak out when they are undergoing physical and mental torture					
5.	There are campaigns conducted in school to educate students on various mental health issues such as poor multitasking, poor time management and lack of attention					
6.	The student fraternity has an encouraging attitude on students who exhibit mental challenges such as poor organizational skills					

**SECTION C: LANGUAGE-BASED LEARNING DISORDER AND  
VULNERABILITY TO DEPRESSION**

**This section has statements regarding language-based learning disorder such as receptive language disorder, expressive language disorder, speech disorder, language delay, aphasia, reading (dyslexia), writing (dysgraphia), arithmetic disorder (dyscalculia), non-verbal learning disorder, Gerstman syndrome. Kindly respond with the response that matches your opinion. Please tick as appropriate in the boxes. 1-strongly disagree, 2-disagree, 3-neutral, 4, agree, 5- strongly agree**

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
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1.	The school has a conducive learning environmental such as friendly teaching staff which influences early correction and treatment of language impairment of the adolescents such as expressive language disorder					
2.	There is a constant awareness program run in the school to improve more knowledge on verbal and non-verbal information comprehension impairment in languages so as to avoid discrimination and mocking by other students					
3.	There are school clubs such as debate clubs which gives students a chance to flourish their speaking abilities					
4.	Students are allowed to form various study groups when answering questions to help the low performers improve, understand subjects more hence improving their reading disorders and also non-verbal communication					
5.	The school has systems whereby students are allowed to attend symposiums and debates to improve their ability to understand various subjects in a new environment.					
6.	There is a positive attitude towards learning through writing as well as encouraging environment for students who have writing disorders to seek help from professional help					

**SECTION E: SEVERE DISRUPTION IN SOCIAL COGNITION AND  
VULNERABILITY TO DEPRESSION**

**This section has statements regarding severe disruption in social cognition such as poor judgement and decision-making, negative behavior, negative attitudes towards people, low collaborative reasoning, immorality and negative thinking. Kindly respond with the response that matches your opinion. Please tick as appropriate in the boxes. 1-strongly disagree, 2-disagree, 3-neutral, 4, agree, 5- strongly agree**

<b>No</b>	<b>Statement</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
1.	Good social interactions are encouraged through awarding more marks on students who have performed well during co-curriculum activities					
2.	Students practice social skills through dictation of words with their friends in various subjects					
3.	Students are allowed to participate in intra classes writing contexts and as well as inter schools so as to improve their decision making					
4.	Teachers pay keen attention to bad behaviors made by the students.					
5.	There are motivational programs put into place by the guidance and counseling to help students change their negative mindset					
6.	The school encourages collaborative reasoning by the students such as study groups, group assignments					

**SECTION F: SUPPORT SYSTEM AND VULNERABILITY TO DEPRESSION**

**This section has statements regarding support system. Kindly respond with the response that matches your opinion. Please tick as appropriate in the boxes. 1- strongly disagree, 2-disagree, 3-neutral, 4, agree, 5- strongly agree**

<b>No</b>	<b>Statement</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
1.	Teachers support students to read passages in class so as to improve their reading skills be able to know who has a reading disorder					
2.	The government has introduced different learning comprehension strategies used such as random assessments to ensure that students understand and support their learning process					
3.	Students have a chance to ask questions on various policies implemented by the school management as a way to ensure the school supports them the best way possible					
4.	There is an encouraging attitude in class whereby students are discouraged from bad behavior such as laughing at other students who portray reading disorders.					
5.	The schools allow students to interact with their peers through science congress and symposiums					
6.	This school has a caring culture on ensuring students become mindful to each other					



	by reporting any students who portrays signs of depression					
--	--	--	--	--	--	--

### SECTION G: VULNERABILITY TO DEPRESSION

**This section has statements regarding vulnerability to depression. Kindly respond with the response that matches your opinion. Please tick as appropriate in the boxes using a tick (✓) or cross mark (x).**

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
1.	Temporary loss of memory causes students not to perform their normal daily activities.					
2.	Stammering causes students suffer from slight depression which occurs for a long period of time					
3.	Reading disorders hampers the mood of the students causing them to be unhappy and depressed especially after reading					
4.	Mathematics learning disorder leads to low self-esteem and which occasionally may cause the student feel worthless					
5.	Writing disorders can make students feel unaccomplished and incompetent leading to abuse of drugs and substances, engage in premature sex so as to feel 'good'.					
6.	The school has raised awareness on how students can know their fellow students are depressed.					

**Thank you for your time**

## **Appendix V: Students' Depression Assessment Tool**

The following is a student's depression assessment tool which you are required to fill in to the best of your ability. Kindly provide your opinion on what you feel about the questions below. Kindly tick the one that best describes your feelings and opinion.

### **1. Low academic performance**

- 1 I find a challenge in keeping up with high grades in my studies
- 2 Hard examination makes me fail
- 3 I do not understand a lot of things taught in class
- 4 I am not worried when I fail exams

### **2. Adolescent pregnancies**

- 1 I fear making someone or getting pregnant
- 2 I would abort a baby if I made someone or got pregnant
- 3 I would drop my studies if I made someone or got pregnant
- 4 My parents would send me away from home if i made someone or got pregnant

### **3. Absenteeism**

- 1 I am never worried if miss classes
- 2 I am always happy when not in class/ school
- 3 I do not get punished for missing school
- 4 School is boring

### **4. Low self-esteem**

- 1 There are a lot of bullies in school
- 2 I normally feel lost in company of others
- 3 My family/ parents/ teachers/ fellow students do not understand me
- 4 I would escape from school/ home if I got a chance

### **5. Loneliness and withdrawal**

- 1 I like keeping to myself though I miss being around people
- 2 It is very hard talking to people about my struggles
- 3 No one seem to care that I am around
- 4 I would rather stay alone than talk or play with my friends

### **6. School drop-out**

- 1 Lack of school fees have made my friends drop school
- 2 Tough punishment is the main cause of some students leaving school
- 3 I would rather open a business than complete school
- 4 My friends outside school encourage me to join them

## Appendix VII: Montreal Cognitive Assessment (MoCA)

### Instructions:

Time to administer the MoCA is approximately 10 minutes. The total possible score is 30 points; a score of 26 or above is considered normal.

#### 1. Alternating Trail Making:

Administration: The examiner instructs the subject: *"Please draw a line, going from a number to a letter in ascending order. Begin here [point to (1)] and draw a line from 1 then to A then to 2 and so on. End here [point to (E)]."*

Scoring: Allocate one point if the subject successfully draws the following pattern: 1 –A- 2- B- 3- C- 4- D- 5- E, without drawing any lines that cross. Any error that is not immediately self-corrected earns a score of 0.

#### 2. Visuoconstructional Skills (Cube):

Administration: The examiner gives the following instructions, pointing to the **cube**: *"Copy this drawing as accurately as you can, in the space below"*.

Scoring: One point is allocated for a correctly executed drawing.

- Drawing must be three-dimensional
- All lines are drawn
- No line is added
- Lines are relatively parallel and their length is similar (rectangular prisms are accepted)

A point is not assigned if any of the above-criteria are not met.

#### 3. Vasoconstriction Skills (Clock):

Administration: Indicate the right third of the space and give the following instructions: *"Draw a **clock**. Put in all the numbers and set the time to 10 after 11"*.

Scoring: One point is allocated for each of the following three criteria:

Contour (1 pt.): the clock face must be a circle with only minor distortion acceptable (e.g., slight imperfection on closing the circle);

Numbers (1 pt.): all clock numbers must be present with no additional numbers; numbers must be in the correct order and placed in the

approximate quadrants on the clock face; Roman numerals are acceptable; numbers can be placed outside the circle contour;

Hands (1 pt.): there must be two hands jointly indicating the correct time; the hour hand must be clearly shorter than the minute hand; hands must be centered within the clock face with their junction close to the clock center.

A point is not assigned for a given element if any of the above-criteria are not met.

#### **4. Naming:**

Administration: Have a picture of a camel, lion and a rhino. Tell them to point to each figure and name the animal

Scoring: One point each is given for the following responses: (1) camel or dromedary, (2) lion, (3) rhinoceros or rhino.

#### **5. Memory:**

Administration: The examiner reads a list of 5 words at a rate of one per second, giving the following instructions: *“This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn’t matter in what order you say them”*. Mark a check in the allocated space for each word the subject produces on this first trial. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, read the list a second time with the following instructions: *“I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time.”* Put a check in the allocated space for each word the subject recalls after the second trial.

At the end of the second trial, inform the subject that (s)he will be asked to recall these words again by saying, *“I will ask you to recall those words again at the end of the test.”*

Scoring: No points are given for Trials One and Two.

## 6. Attention:

Forward Digit Span: Administration: Give the following instruction: “*I am going to say some numbers and when I am through, repeat them to me exactly as I said them*”. Read the five number sequence at a rate of one digit per second.

Backward Digit Span: Administration: Give the following instruction: “*Now I am going to say some more numbers, but when I am through you must repeat them to me in the backwards order.*” Read the three number sequence at a rate of one digit per second.

Scoring: Allocate one point for each sequence correctly repeated, (*N.B.*: the correct response for the backwards trial is 2-4-7).

Vigilance: Administration: The examiner reads the list of letters at a rate of one per second, after giving the following instruction: “*I am going to read a sequence of letters. Every time I say the letter A, tap your hand once. If I say a different letter, do not tap your hand*”.

Scoring: Give one point if there is zero to one error (an error is a tap on a wrong letter or a failure to tap on letter A).

Serial 7s: Administration: The examiner gives the following instruction: “*Now, I will ask you to count by subtracting seven from 100, and then, keep subtracting seven from your answer until I tell you to stop.*” Give this instruction twice if necessary.

Scoring: This item is scored out of 3 points. Give no (0) points for no correct subtractions, 1 point for one correction subtraction, 2 points for two-to-three correct subtractions, and 3 points if the participant successfully makes four or five correct subtractions. Count each correct subtraction of 7 beginning at 100. Each subtraction is evaluated independently; that is, if the participant responds with an incorrect number but continues to correctly subtract 7 from it, give a point for each correct subtraction. For example, a participant may respond “92 – 85 – 78 – 71 – 64” where the “92” is incorrect, but all subsequent numbers are subtracted correctly. This is one error and the item would be given a score of 3.

## 7. Sentence repetition:

Administration: The examiner gives the following instructions: “*I am going to read you a sentence. Repeat it after me, exactly as I say it [pause]: **I only know that John is the one to help today.***” Following the response, say: “*Now I am going to read you another sentence. Repeat it after me, exactly as I say it [pause]: **The cat always hid under the couch when dogs were in the room.***”

Scoring: Allocate 1 point for each sentence correctly repeated. Repetition must be exact. Be alert for errors that are omissions (e.g., omitting "only", "always") and substitutions/additions (e.g., "John is the one who helped today;" substituting "hides" for "hid", altering plurals, etc.).

**8. Verbal fluency:**

Administration: The examiner gives the following instruction: *“tell me as many words as you can think of that begin with a certain letter of the alphabet that I will tell you in a moment. You can say any kind of word you want, except for proper nouns (like Bob or Boston), numbers, or words that begin with the same sound but have a different suffix, for example, love, lover, loving. I will tell you to stop after one minute. Are you ready? [Pause] Now, tell me as many words as you can think of that begin with the letter F. [time for 60 sec]. Stop.”*

Scoring: Allocate one point if the subject generates 11 words or more in 60 sec. Record the subject’s response in the bottom or side margins.

**9. Abstraction:**

Administration: The examiner asks the subject to explain what each pair of words has in common, starting with the example: *“Tell me how an orange and a banana are alike”*. If the subject answers in a concrete manner, then say only one additional time: *“Tell me another way in which those items are alike”*. If the subject does not give the appropriate response (*fruit*), say, *“Yes, and they are also both fruit.”* Do not give any additional instructions or clarification.

After the practice trial, say: *“Now, tell me how a train and a bicycle are alike”*. Following the response, administer the second trial, saying: *“Now tell me how a ruler and a watch are alike”*. Do not give any additional instructions or prompts.

Scoring: Only the last two item pairs are scored. Give 1 point to each item pair correctly answered.

The following responses are acceptable:

Train-bicycle = means of transportation, means of travelling, you take trips in both; Ruler-watch = measuring instruments, used to measure.

The following responses are **not** acceptable: Train-bicycle = they have wheels; Ruler-watch = they have numbers.

**10. Delayed recall:**

Administration: The examiner gives the following instruction: “*I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can remember.* Make a check mark (3) for each of the words correctly recalled spontaneously without any cues, in the allocated space.

Scoring: **Allocate 1 point for each word recalled freely without any cues.**

**Optional:**

Following the delayed free recall trial, prompt the subject with the semantic category cue provided below for any word not recalled. Make a check mark (3) in the allocated space if the subject remembered the word with the help of a category or multiple-choice cue. Prompt all non-recalled words in this manner. If the subject does not recall the word after the category cue, give him/her a multiple-choice trial, using the following example instruction, “*Which of the following words do you think it was, NOSE, FACE, or HAND?*”

Use the following category and/or multiple-choice cues for each word, when appropriate:

FACE:	category cue: part of the body	multiple choice: nose, face, hand
VELVET:	category cue: type of fabric	multiple choice: denim, cotton, velvet
CHURCH:	category cue: type of building	multiple choice: church, school, hospital
DAISY:	category cue: type of flower	multiple choice: rose, daisy, tulip
RED:	category cue: a colour	multiple choice: red, blue, green

Scoring: **No points are allocated for words recalled with a cue.** A cue is used for clinical information purposes only and can give the test interpreter additional information about the type of memory disorder. For memory deficits due to retrieval failures, performance can be improved with a cue. For memory deficits due to encoding failures, performance does not improve with a cue.

**11. Orientation:**

Administration: The examiner gives the following instructions: “*Tell me the date today*”. If the subject does not give a complete answer, then prompt accordingly by saying: “*Tell me the [year, month, exact date, and day of the week].*” Then say: “*Now, tell me the name of this place, and which city it is in.*”

Scoring: Give one point for each item correctly answered. The subject must tell the exact date and the exact place (name of hospital, clinic, office). No points are allocated if subject makes an error of one day for the day and date.

**TOTAL SCORE:** Sum all sub scores listed on the right-hand side. Add one point for an individual who has 12 years or fewer of formal education, for a possible maximum of 30 points. A final total score of 26 and above is considered normal.

**An example of MoCA test used in the study**

**MONTREAL COGNITIVE ASSESSMENT (MOCA)**

Education : \_\_\_\_\_ Date of birth : \_\_\_\_\_  
Sex : \_\_\_\_\_ DATE : \_\_\_\_\_

VISUOSPATIAL / EXECUTIVE		Copy cube	Draw CLOCK (Ten past eleven) (3 points)	POINTS			
		[ ]	<input type="checkbox"/> Contour <input type="checkbox"/> Numbers <input type="checkbox"/> Hands	___/5			
NAMING				___/3			
MEMORY	Read list of words, subject must repeat them. Do 2 trials. Do a recall after 5 minutes.	FACE	VELVET	CHURCH	DAISY	RED	No points
	1st trial						
	2nd trial						
ATTENTION	Read list of digits (1 digit/ sec). Subject has to repeat them in the forward order [ ] 2 1 8 5 4 Subject has to repeat them in the backward order [ ] 7 4 2				___/2		
	Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors [ ] FBACMNAAJKLBFAFAKDEAAAJAMOF AAB				___/1		
	Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65 4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt				___/3		
LANGUAGE	Repeat: I only know that John is the one to help today. [ ] The cat always hid under the couch when dogs were in the room. [ ]				___/2		
	Fluency / Name maximum number of words in one minute that begin with the letter F [ ] ____ (N ≥ 11 words)				___/1		
ABSTRACTION	Similarity between e.g. banana - orange = fruit [ ] train - bicycle [ ] watch - ruler				___/2		
DELAYED RECALL	Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUE recall only
	Optional Category cue						
	Optional Multiple choice cue						
ORIENTATION	[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City				___/6		
© Z.Nasreddine MD Version November 7, 2004				Normal ≥ 26 / 30	TOTAL ___/30 Add 1 point if ≤ 12 yr edu		



## **Appendix VI: Cognitive Deficits Seminar Outline**

### **PRE-ASSESSMENT SEMINAR OUTLINE**

#### **What Are Cognitive Deficits**

- ❖ Cognitive deficits which are also known as cognitive disorders are abnormalities that are exhibited in a person's brain whereby, they are unable to pay attention, suffer partial or complete loss of memory, and unable to be knowledgeable on various events happening around them.

#### **How Can You Tell that a Person Has Cognitive Deficits?**

- ❖ Inability to speak well
- ❖ Relate with others in a healthy manner,
- ❖ Perceive and comprehend things and make sound decisions

#### **Types Of Cognitive Deficits**

- ❖ Temporary loss of memory (amnesia),
- ❖ Impairment of language,
- ❖ Mathematics learning disorders (dyscalculia),
- ❖ Writing disorders (agraphia),
- ❖ Reading disorders (alexia),
- ❖ Executive functioning disorders,
- ❖ Learning disorders
- ❖ Severe disruption in social cognition

### **POST ASSESSMENT SEMINAR OUTLINE**

#### **Effect of Cognitive Deficits**

- ❖ Low academic performance
- ❖ School drop-out
- ❖ Teenage pregnancies
- ❖ Abuse of drugs
- ❖ Strikes
- ❖ Fighting

### **Prevention Of Cognitive Deficits**

- ❖ Report any suspected signs of cognitive deficits early to a psychologist/ medical practitioner.
- ❖ Avoid bullying and stigmatizing students who portray the above-named signs.
- ❖ Undertake any precautionary steps guided by a psychologist/ medical practitioner.

## Appendix VII: Introduction Letter from KeMU



KENYA METHODIST UNIVERSITY

P. O. Box 267 Meru - 60200, Kenya  
Tel: 254-064-30301/31229/30367/31171

Fax: 254-64-30162  
Email: [deanrd@kemu.ac.ke](mailto:deanrd@kemu.ac.ke)

### DIRECTORATE OF POSTGRADUATE STUDIES

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April 28, 2022

Commission Secretary,  
National Commission for Science, Technology and Innovations,  
P.O. Box 30623-00100,  
**NAIROBI.**

Dear Sir/Madam,

**RE: KIAMBARUA KENNETH GITIYE REG. NO. PSC-4-9659-3/2018**

This is to confirm that the above named is a bona fide student of Kenya Methodist University, Department of Theology, Religious Studies and Counselling, School of Education and Social Sciences. He is undertaking a PhD in Counselling Psychology, conducting a research on **Effect of Cognitive Deficits in Vulnerability to Depression Among Adolescents in Secondary Schools in Meru County**

We confirm that his research proposal has been presented and approved by the University as per the Common Rules and Regulations of Postgraduate studies.

In this regard, we request your office to issue a research license to enable him collect data for his academic research.



**Dr. John Muchiri Ph.D.**  
**Director, Postgraduate Studies**

Cc: Dean SESS

CoD, Theology, Religious Studies and Counselling  
Postgraduate Co-ordinator- Theology Religious Studies and Counselling  
Supervisors

**Appendix VIII: NACOST Permit**

  
**REPUBLIC OF KENYA**

  
**NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY & INNOVATION**

Ref No: **905251** Date of Issue: **04/May/2022**

**RESEARCH LICENSE**



**This is to Certify that Rev.. KENNETH KIAMBARUA GITUYE of Kenya Methodist University, has been licensed to conduct research in Meru on the topic: EFFECT OF COGNITIVE DEFICITS IN VULNERABILITY TO DEPRESSION AMONG ADOLESCENTS IN SECONDARY SCHOOLS IN MERU COUNTY, KENYA for the period ending : 04/May/2023.**

License No: **NACOSTI/P/22/17280**

**905251**  
Applicant Identification Number

  
Director General  
**NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY &  
INNOVATION**

Verification QR Code



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

## Appendix IX: Ethical Clearance



KENYA METHODIST UNIVERSITY

P. O. BOX 267 MERU - 60200, KENYA

FAX: 254-64-30162

TEL: 254-064-30301/31229/30367/31171

EMAIL: [INFO@KEMU.AC.KE](mailto:INFO@KEMU.AC.KE)

25 April 2022  
KIAMBURA KENNETH GITIYE  
PSC-4-9659-3/2018  
Kenya Methodist University

KeMU/SERC/PSC/ 1/2022

Dear KIAMBURA,

**SUBJECT: EFFECT OF COGNITIVE DEFICITS IN VULNERABILITY TO DEPRESSION AMONG ADOLESCENTS IN SECONDARY SCHOOLS IN MERU COUNTY, KENYA**

This is to inform you that Kenya Methodist University Scientific Ethics and Review Committee has reviewed and approved your research proposal. Your application approval number is KeMU/SERC/ PSC/1 /2022. The approval period is 25<sup>th</sup> April 2022 – 25<sup>th</sup> 2023.

This approval is subject to compliance with the following requirements

- I. Only approved documents including (informed consents, study instruments, MTA) will be used.
- II. All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Scientific Ethics and Review committee.
- III. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU SERC within 72 hours of notification.
- IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU SERC within 72 hours.
- V. Clearance for export of biological specimens must be obtained from relevant institutions.

- VI. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
- VII. Submission of an executive summary report within 90 days upon completion of the study to KeMU SERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.

Your sincerely,



**Appendix X: Authorization Letter from County Commissioner**



## Appendix XI: Authorization Letter from County Director of Education



**REPUBLIC OF KENYA**  
**MINISTRY OF EDUCATION**  
State Department of Early learning and Basic Education

Email.cdemerucounty@gmail.com  
Telegrams: "ELIMU" Meru  
When Replying please quote  
MERU

County Director of Education  
Meru County  
P.O. BOX 61

Ref: MRU/C/EDU/11/1/293

13<sup>th</sup> May, 2022

**TO WHOM IT MAY CONCERN**

**RE: RESEARCH AUTHORIZATION –REV. KENNETH KIAMBARUA GITIYE**

Reference is made to letter Ref.NO.NACOSTI/P/22/17280 dated 4<sup>th</sup> May, 2022.

Authority is hereby granted to **REV. KENNETH KIAMBARUA GITIYE** to conduct research on **"EFFECT OF COGNITIVE DEFICITS IN VULNERABILITY TO DEPRESSION AMONG ADOLESCENTS IN SECONDARY SCHOOLS IN MERU COUNTY, KENYA"**, for the period ending 04<sup>th</sup> May, 2023.

→ The person undertaking this study is bound by all the ethical rules and regulations governing surveys of this nature.

FOR: COUNTY DIRECTOR OF EDUCATION  
MERU COUNTY  
P. O. BOX 61- 60200  
Tel: 064-32372 MERU

**KAMANDE MBURU**  
For: **County Director of Education**  
**MERU COUNTY**