RELATIONSHIP BETWEEN MEMORY OF TRAUMA AND SELECTED PSYCHOBIOSOCIAL CONSTRUCTS AMONG ADOLESCENTS WITH PHYSICAL DISABILITIES IN KIAMBU COUNTY, KENYA

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DECLARATION

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

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DEDICATION

I dedicate this work to Jonathan, Mwendwa and Wendo who came into my life at the onset of this journey. Their love, support and admiration kept me going.

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OPERATIONAL DEFINITIONS OF KEY CONCEPTS AND TERMS

Psychobiosocial constructs: these are constructs that affect the psychological, biological and social aspects of an individual. The concepts that influence an individual's conduct, in this study referring to social competence, self-esteem, Dissociation and somatization.

Dissociation: out of body experience that results to fragmented sense of identity, absorption, amnesia and derealization leading to presentation of certain behavior that was not intended such as day dreaming, losing touch with reality, numbness and feeling that the event is affecting someone else but not the individual.

Memory of trauma: the ability to process, store and recall information regarding a trauma causing experience. In this study memory of trauma included the Triggered memory, extent of memory and description of the trauma event. Recall of events or experiences that were life threatening to self or others that left an imprint in one's life

Physical disability: physical impairment of body parts other than sight and hearing that could be congenital or as a result of illness or an accident.

Psychological Trauma: emotional damage or shock caused by life threatening experiences such as exposure to violence, accident or deformity, sudden death, illness etc.

Self- esteem: the value or worth that one attaches to self.

Social Competence: social skills that are necessary to get along with others, rely on cognitive abilities such as perceptiveness of others' feelings, perspectives, knowledge of social rules, social life and insight in social situations.

Somatization: presentation of symptoms of illness that cannot be verified medically or are nonspecific that could be related to psychological effect of the trauma on the individual.

ABBREVIATIONS AND ACRONYMS

DSM V	Diagnostic Statistical Manual (5^{TH} Edition)
PTSD	Post Traumatic Stress Disorder
PWD	People with Disability
PWAD	People with Acquired Disability

ABSTRACT

Adolescents with physical disability experience trauma causing events which imprint heavily into their memory. Memory of trauma may cause one to relive the event therefore evoking the feelings they experienced during the actual trauma. Few studies have been carried out on the memories of trauma and its effect on psychobiosocial constructs especially among Adolescents with Physical Disability. The purpose of this study is to establish the relationship between memory of trauma and selected psychobiosocial constructs (self-esteem, social competence, dissociation and somatization). Psychoanalytic and psychobiological theory guided this study. Mixed methods design comprising of phenomenology and correlation was employed for the research. The study was carried out in a national institution that hosts adolescents with physical disability from all counties in Kenya. The sample was drawn using purposive and stratified random sampling techniques. A total of 129 adolescents with physical disability and two counselor teachers participated in the study. Data collection was conducted using questionnaires with standard tools such as the Rosenberg self-esteem test (Rosenberg, 1997) and Dissociation event scale (Carlson, 1944), Trauma indicator, Impact of trauma scale, somatization scale, social competence scale interviews and two focus group discussions to find out the relationship between memory of trauma and psychobiosocial constructs. An interview schedule was used for the teachers. Descriptive, correlations and thematic approaches were used for data analysis. The qualitative analysis was done thematically. Findings were presented using tables and qualitative data was transcribed presented verbatim. Results showed that all participants experienced at least one trauma causing events such as physical and sexual abuse, loss of loved ones, life threatening natural phenomena, road traffic accidents, sudden inability to carry out activities of daily living and amputation. Triggers of memory of trauma were reported as either external or internal loci. There was a relationship between Memory of trauma and selected psychobiosocial constructs as seen in the following findings: A positive significant relationship between memory of trauma and somatization; internal loci of memory triggers and somatization r (129) = .239 p = .006. Memory of trauma with dissociation had a significant positive relation for internal loci of memory of trauma r (129) = .256 p = .003. A negative relationship was noted between internal loci trigger of memory of trauma and social competence. Further correlation between impact of memory of trauma and psychobiosocial constructs were all significant, inverse direction and of average magnitude, except for somatization which had a positive correlation. The findings therefore emphasize the need to focus on impact of memory of trauma when supporting Persons with Physical disability because it influences the psychobiosocial constructs significantly. A model for multidimensional approach in mitigating effects of trauma was proposed. The model proposed inclusion of trained support providers so that Adolescent with physical disability are assisted to manage memory of trauma. Screening for trauma and impact of memory of trauma was recommended so as to identify the affected adolescent with physical disability so as to support them in the healing process.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Trauma events such as ethnic conflict, war, abuse, accidents and natural phenomena like earthquakes and hurricanes are common and vary in their nature, intensity and psychological impact. The diagnostic statistical manual - fifth edition [DSM-V], defines trauma as an experience that threatens the life of an individual and cause, severe injury, death or sexual violence (APA, 2013). The definition involves direct experience of the event and /or watching the event affect others or learning that the event occurred to a close family member or friend. It also includes consequent exposure to disturbing details that may involve death, injury or threat to physical integrity of an individual leading to profound stress.

Trauma events are sudden, unsettling and overwhelming even to people with abundant psychological resources (Ginsburg & Kinsman, 2013). Memory of trauma occurs after the event and it causes emotional disturbance or shock. Memories of trauma may cause distress, impair social functioning and affect efficiency at the work place therefore influencing quality of life. The effects of memory of trauma may be immediate or delayed into the future, later it occurs as triggered or suppressed memory. Life after trauma is complex because memory of trauma lingers long afterwards.

Individuals with disability education Act (IDEA), a special education legislation in the United States (US), defines disability as orthopedic impairment that adversely affects a child (Kiarie, 2014). Disability may affect mobility and ability to complete tasks such as eating, bathing, writing and others. The Education and Training sector policy for learners and trainees with disabilities, in Kenya define disability as, inability or constraints in performance of activities in a way that is considered customary within the cultural context (MOE, 2018). This definition includes mobility, congenital and other aspects of disability that are invisible. Some disabilities are caused by trauma events and form memories that may influence psychobiosocial constructs.

Trauma events overwhelm everyone, regardless of physical, social or psychological status, because of their life threatening and destabilizing nature of memory (APA, 2013). Effects of trauma are mediated by one's psychological, social and physical status, age, gender, personality type and intensity of the trauma event (Nader, 2008). For instance, people with physical disability may not cope well because of the associated social stigma (Andolo, 2019) resulting to reduced social competences or lowered self-esteem. Trauma may predispose one to dissociation or somatization which is a psychobiosocial construct.

Most studies on trauma indicate that it is possible to recall a trauma event that occurred in early childhood (Goodman, 2013). However, sometimes memory of trauma exhibits in the form of intrusive thoughts, avoidance of thoughts or reminders of the event that interfere with the victim's cognitive functioning (Walker, 2009; Uttl, Ohta & Siegenhalereds, 2006). Reactions to trauma such as, hyper-arousal, phobias, amnesia and posttraumatic stress

disorder (Kienle, Rockstron, Bohus, 2017), are particularly as a result of trauma events which occurred early in life (ISST, 2011) yet stored in the memory as it affects the individual. Trauma events form memory which may affect the victim in various ways. Post trauma reactions are an aftermath of memories of traumatic event that have been triggered. A survey was done in the US by the national center for PTSD among young people and reported high prevalence of neglect, victimization and domestic violence (National Center for PTSD, 2013). In South Africa, a study found that 99.7% adolescents experienced one or more violent events and the adolescent men experienced more trauma events than the adolescent women (Dietrich et al., 2016). The prevalence rate of PTSD in Algeria was 37.5%, Cambodia 15.8%, Ethiopia 15.8% and Gaza 15.8% (Dejong et al., 2001). In Kenya, study shows that 51.7% of children exposed to trauma develop PTSD (Ongecha et al., 2007), while another study reports that 47% of children and adolescents report five or more trauma events (Harder, Mutiso, Khasakala, Burke, & Ndetei, 2012). These studies confirm that prevalence of trauma events among adolescents is global. Memory of the trauma is retained in the adolescents, therefore the need to understand how trauma influences the adolescents in various aspects. This would lead to the exploration of influence of memory of trauma on psychobiosocial constructs among the adolescents.

Research carried out among adolescents with disability include ‘Social Community Participation of Children and Youth with Cerebral Palsy’ (Palsiano, et al., 2009); and Behavior Disorders, Social Competence and the Practice of Physical Activities among Adolescents’ (Gendron et al., 2004). Both studies focused on social constructs among

adolescents with disability yet the memory of trauma which may have contributed to the outcome of the study was not explored.

Adolescents with physical disability (AWPD) require more effort to transit to adulthood (Nair, & Anuradha, 2014), because of the multiple psychological challenges that affect their psychobiosocial constructs even in the absence of memory of trauma. Some Adolescents with physical disability spend time in hospital, where they undergo painful intrusive and traumatizing procedures, during corrective surgery. Social stigma, verbal abuse and disability acquired after accidents could be sources of memory of trauma.

Studies have confirmed that the traumatic experiences imprint themselves into the minds of individuals resulting psychological problems (Luoni, 2018). Moreover, studies on memory suggest that people suppress painful thoughts that influence psychobiosocial constructs (Meyer, Fleischman, Young & Gold, 2019). A study on rehabilitation of adolescents, after injury reported that rehabilitation facilitated improvement of functional status (Zonfrillo, et al., 2018) and this includes biological, social and psychological status. Memory of trauma may influence the time taken for the individual to fully benefit from rehabilitation a factor that was not studied.

When adolescents with physical disability (Adolescent with physical disability) are exposed to trauma, it may later on cause low self-esteem, failure to achieve social competence (Seena, 2013), irrational behavior such as phobia, PTSD, distrust and antisocial behavior (Schmid, Petermann & Fergert, 2013) as a result of active memory of trauma. Depending on how fears after trauma were managed, adolescent with physical

disability could develop social incompetence (Teles, Resegue & Puccini, 2016), low self-esteem, somatization (Gao, Yao, Yao et al.,2019) and dissociation, which originate from memory of trauma. These psychobiosocial constructs are products of memory of trauma, therefore the need to establish how the memory of trauma can be mitigated to improve adolescent with physical disability wellbeing.

Psychoanalytic theory, explains that memory is stored in the subconscious or unconscious mind. Most of the memory of trauma is stored in the unconscious mind. Memory of trauma is 30% to 40% within lifetime, meaning we are most of the time recalling things that happened in the past and the memory brings up painful feelings, emotions, habits and behavior (Milot, Eithier & St-laurent, 2010). Memory that is stored as unconscious mind controls behavior through suppression or defense mechanism in the form of dissociation and somatization. Memory of trauma can be triggered by events or hypnosis. Psychobiological theory brings the understanding of the relationship between memories of trauma with psychobiosocial constructs among adolescents with physical disability. The current study explored adolescents with physical disability's memory of trauma and how it relates with selected psychobiosocial constructs such as social competence, self-esteem, somatization and dissociation. Mitigation strategies of the effects of memory of trauma were explored and a model was proposed.

1.2 Statement of the Problem

Memory of trauma causes individuals to relive the painful events that were experienced in the past therefore, affecting psychobiosocial constructs, more so for those that have

disability. Despite this understanding, few studies have examined the effect of memory of trauma on psychobiosocial constructs of adolescents with physical disability.

Studies that have been carried out on memory of trauma focused more on bridging cognitive science and its clinical application and response to memory on general population with little focus on adolescents (Mooren, Krans, Naringa & Van Minnen, 2018). This is inspite of the fact that the adolescents with physical disabilities experience trauma events such as accidents, amputation, and abuse (physical, verbal and sexual) therefore affecting their psychobiosocial wellbeing. Psychobiosocial constructs such as self - esteem, social competence among others contribute in the development of adolescents with physical disability character. Trauma events cause painful memories, which are suppressed by most populations and this affects life unconsciously.

While a lot of studies have been carried out focus on prevalence of trauma in Kenya, none have focused on the relationship between memory of trauma and the psychobiosocial constructs. Psychobiosocial constructs highly influence the quality of life and behavior; this posed a question that needed to be responded to: Is the adolescent with physical disability affected by memory of trauma? Is there empirical data on the same? There is a knowledge gap (Muller-Bloch and Kranz, 2014), that needs to be filled.

Although adolescent with physical disability may experience memory of trauma, little is known about the relationship between these memories and psychobiosocial constructs that shape individual's social, physiological and psychological manifestation. This study

therefore sought to determine the relationship between memory of trauma and psychobiosocial constructs among adolescent with physical disability in Kenya.

1.3 Purpose of Study

The purpose of this study was to establish the relationship between memory of trauma and selected psychobiosocial constructs among adolescents with physical disability such as self-esteem, somatization, social competence and dissociation, hence provide information that may be useful in giving quality care for adolescents with physical disability through a proposed model.

1.4 Objectives of the Study

The specific objectives of the study include:

1. To establish the causes of memory of trauma among adolescents with physical disability
2. To analyze triggers of memory of trauma among adolescents with physical disability
3. To find out the participants' levels of the following psychobiosocial constructs: self-esteem, social competence, dissociation and somatization.
4. To establish the relationship between impact of memory of trauma and selected psychobiosocial constructs.
5. To assess the relationship between memories of trauma and the following psychobiosocial factors among Adolescents with physical disability:

a. Self-esteem

b. Social Competence,

c. Dissociation,

d. Somatization

6. To propose strategies for mitigation of the effect of memory of trauma on selected psychobiosocial constructs among adolescents with physical disability.

1.5 Research Questions

The study was guided by the following research questions;

1. What are the causes of memory of trauma experiences among adolescents with physical disability?
2. What are the triggers of memory of trauma among Adolescent with physical disability?
3. What are the participants' levels of psychobiosocial constructs?
4. What is the relationship between impact of memory of trauma and psychobiosocial constructs?
5. What is the relationship between memory of trauma and selected psychobiosocial constructs among adolescent with physical disability? (Self- esteem, Social Competence, Dissociation, Somatization)
6. How can the effect of memory of trauma on the selected psychobiosocial constructs be mitigated among adolescent with physical disability?

1.6 Hypothesis

There is no significant relationship between memory of trauma and the following psychobiosocial constructs of adolescent with physical disability; self-esteem, social competence, somatization and dissociation. (H_o).

1.7 Justification and Significance of the Study

Adolescents with physical disability are part of our society and their psychological well-being is vital to the welfare of the community. Most Adolescents with physical disability experience trauma during their childhood and adolescence. Trauma may lead to memories that could affect their daily lives just like any other person. Exploring memories of trauma can provide a basis upon which policies and effective interventions can be designed. This study is justifiable because it contributes knowledge that enhances understanding of events that result in memory of trauma, triggers of the memory, impact and the relationship between the memories of trauma and psychobiosocial constructs. The findings would provide information that guides in identifying best practices to mitigate harm caused by trauma memories hence facilitate healing. Findings of the study increase knowledge on relationship between memory of trauma and social competence, somatization, dissociation, self-esteem, as psychobiosocial constructs. This will help provide relevant support and enable adolescent with physical disability to fit well in the society. The findings of the study would be useful in improving the quality of life for adolescents with physical

disability through creating awareness on the relationship between memory of trauma and psychobiosocial constructs.

The findings can be used by counselors in the formulation of treatment plans that enhance efficacy in management of adolescents and especially adolescents with physical disability. Social workers would gain increased awareness of possible issues that they are likely to encounter as they work with adolescents with physical disability. School teachers may use the recommendations to improve the effectiveness of guidance and counseling programs, organize screening schedules and develop individualized educational programs that would facilitate a better learning environment for adolescents with physical disability. The government could use the findings to enhance the well-being of adolescents with physical disability as well as facilitate the implementation of the policies that address issues of memory of trauma. The findings may be useful in creating awareness to the community on matters regarding disability towards formulation of better programs that may help adolescent with physical disability overcome the influence of trauma memories. Generally the findings would be used to improve the quality of life of adolescent with physical disability.

1.8 Assumptions of the Study

The researcher worked with the following assumptions;

1. Adolescents with physical disability experience memories of trauma that affect their daily functioning.

2. Since the participants were providing information through self-reports, it was assumed that their reports were accurate.
3. The participants were drawn from an institution that drew learners who had physical disability from most counties in Kenya.

1.9 Scope of the Study and Limitations

The study was carried out in Kiambu County, at Thika West Sub County in an academic institution for adolescents with physical disability. The target institution is the only national secondary school that accommodates adolescent learners with physical disability that draws learners from all over Kenya. The study explored the relationship between memories of trauma and psychobiosocial constructs among adolescent with physical disability. The study was restricted to adolescents with disability between the ages 13 and 23 years from all over the country.

The study was limited to use of self reports on experience of trauma by the participants. Use of specific and standardized questionnaires helped to validate the information provided. The participants were in one institution though drawn different counties in the country. This was due to the nature of the participant's availability, mobility and access.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the theoretical framework, review of literature on trauma, its memory and psychobiosocial constructs such as self-esteem, social competence, dissociation and somatization, Strategies of mitigation of effects of memory of trauma then ends with a conceptual framework.

2.2 Theoretical Frame Work

The study was guided by Freud's (1915) psychoanalytic theory (Freud,1915) and the psychobiological theory of trauma (Vanderkolk,1989; Corey, 2001).The psychoanalytic theory provided the basis for understanding how memories of trauma are suppressed and repressed, through defense mechanism (Boag, 2018; Chawla & Ostafin, 2007), while the psychobiological theory explained functioning of the individual after experiencing trauma (Dent, 2020). Freud in Psychoanalytic theory proposed that both id and super ego compete to determine human behavior therefore causing anxiety and ego defense mechanism.

The effect of a traumatic event, is expressed externally or internally (Milot, Eithier, St-Laurent & Provost, 2010). A study among fourty four adolescents between age 12-14 years reported that students with more internalising symptoms benefitted from treatment procedures when they shared narratives (Herres, Williamson, Kobak et al., 2017). Sharing

of narratives contributed to working through the memory of the traumatic event. The external expression is managed by the id or ego depending on the intensity of memory of trauma. Memories of trauma are repressed because they threaten the ego, leading to the super ego taking over, to a point of causing hysterical conversion (Boag, 2020). Conversion is a process whereby emotional contents of the mind are converted to present as bodily symptoms (Zepf, 2015) as a result of repressed memory. People cope with memory of trauma by engaging defense mechanisms, which may be initiated through *eros*, (life) or *thanatos* (death) instincts (Tull, 2010). In this study, psychoanalytic theory informed identification of; i. memory of traumatic events, ii. defense mechanisms deployed to cope iii. effects of memories of traumatic event on psychobiosocial constructs. Traumatized people experience agonizing feelings and memories that imprint in the mind (Klein & Scheme, 2009; MCGuffey, 2005). The psychoanalytic theory refers to psychological adaptation through the developmental history, the unconscious thoughts and interpersonal processes (Athanasia-Lewis, 2018). This processes that eventually influence social interactions therefore enabling us to understand social competence and self esteem as constructs in this study.

The theory of psychobiology, which is based on psychoanalytic theory, asserts that hyper arousal causes memories to split off from consciousness and be stored as visual images or bodily sensations (Pierre, 1889). Emotional states, nightmares, flashbacks or reenactments are psychological responses (Perez, Abrams, Lopez-Martinez & Asmund, 2012), while bodily sensations such as visual images, physiological hyper arousal and numbing, altered release of hormone which may affect sensory stimulation are biological reactions. The

theory emphasizes that trauma is stored in the somatic cells therefore enables the body to respond in a biological manner (Cook et.al 2005). When an individual presents somatization, it is likely that they were not able to address the psychological trauma therefore it translated to the body as medically unexplained pain or physical discomfort. Chronic health problems are experienced after trauma and this may affect the physical and social wellbeing (Tallman & Hoffman, 2017). In this study, the psychobiological theory facilitates the understanding of somatization. It suggests that the extent to which one responds to trauma is related to the psychobiological maturity, the intensity of the stressors and prior trauma events that were experienced and the quality of social support. Memories of trauma may present in body as somatisation and dissociation while self esteem is psychological and social competence is social. Psychoanalytic and psychobiological theories provide a better understanding of memory of trauma and its effects on the selected psychosocial constructs.

Summary of the theoretical framework:

Therefore, the pyschoanalytic and the psychobiosocial theories are appropriate in informing this study because while the psychonalysis theory guides on effects of the traumatic events and how individuals deal with memory to protect the ego from being harmed by the memory of the trauma event by defense mechanisms like dissociation, the psychobiological theory informs the study on the physiological and psychological manifestation of post traumatic effects such as somatisation, dysfunctional social competence or a weak self esteem. Collectively the two theories provide a basis for study

on the effects of memory of trauma and how the psychobiosocial constructs relate as the adolescent copes with trauma and disability.

2.3 Review of Related Literature

2.3.1 Causes of Memory of Trauma Experience Adolescents

Occurrence of trauma initiates memory of trauma. The occurrence of a trauma event is normally followed by memory of the event and its impact on the individual which may affect them immediately or much later resulting to psychological trauma and or physiological stress (APA, 2013). The effect of trauma may translate to psychobiosocial presentation. In the US, five (5) million children are exposed to traumatic events by age 11 and 11% of youth experience trauma by the age of 18 years (Eckes & Radanovich, 2010). In addition 40% children and 70% adults in general population experience at least one traumatic stressor in their lifetime (Williams & Barnyard, 2010).

A study on trauma and mental health carried out in South Africa after the apartheid indicated that 16% adolescents had anxiety while 21% had post-traumatic stress disorder (PTSD) (DasMunshi, Lund et al., 2016) which is a complication of Trauma experience. Harder, Mutiso, Khasakala, Burke and Ndetei, (2012) carried a study on impoverished Kenyan youth and they reported that 11-17% youths experienced post trauma stress disorder after election violence. Another report carried out in charitable institutions in Kenya reported 63.2% of the neglected adolescents in charitable institutions experienced one type of abuse while 66% experienced maltreatment and 21.6% were positive for post trauma stress disorder (Nyagwencha, Munene, James and Burke, 2018). Another study

among school going children in urban and rural settings recorded that 49.6% witnessed trauma events such as people being beaten or killed and 42% heard of a violent death or injury of a loved one (Mbwayo, Mathai, Harder, Codimos & Stoep, 2020). A study that was carried out around Mt Elgon in Kenya established that trauma among adolescents was as a result of violence (Nasongo & Muola, 2011). The studies show that most Kenyan adolescents have experienced violence, abuse, maltreatment and general trauma. High prevalence of trauma indicates that most adolescents have memories of trauma. However data regarding adolescents with physical disability was not indicated in all the studies

Adolescence is a developmental stage characterized by identity seeking, power struggles with parents or those in authority (Eckes & Radanovich, 2010) and adolescent fable, which expose them to a wide range of emotions and risk behaviors that result to exposure trauma events. Trauma events such as killings, floods, rape, murder, motor vehicle accidents, amputations, violence, war, peers suicide, sexual, neglect, betrayal and physical abuse (Tallman, 2017), are encountered during adolescence therefore imparting memory of trauma. Some of the events that cause trauma may lead to acquired disability. Impact of child abuse may develop health problems, substance abuse, sexual acting out, self-mutilation, suicidal ideation and teenage pregnancy during adolescence (Feather, 2007). In adulthood, childhood trauma may lead to depression, schizophrenia, social dysfunctions, low self-esteem, violence and crime, lowered academic and social involvement (Nijenhuis, 2007). Abused children in foster care facilities reported challenges in social emotional competence (Pears, et al., 2010). Repetitive child abuse leads to psychopathologies in adulthood (Mclaughin, Rodman & Weisman, 2020; Waikamp & Barcellos, 2019). The

studies are however limited in explaining the relationship between the memories of trauma and psychobiosocial manifestations. Other causes of trauma include terrorism and parents' divorce (Block, & Spiegel, 2017), and abandonement by parents (Ishmailli & Yacob, 2011). Abandonement contributes to trauma, memory of trauma and attachment problems. Post-election violence caused trauma experiences such as threats to life, sudden deaths, destruction of a livelihood and physical disability. Trauma facilitates fear and lose of social skills hence unhealthy presentation of social skills (Zembyas, 2007) among adolescents and manifestation of dissociation (Green, & Myrick, 2014) or somatisation as a result of continued exposure or incomplete processing of the event.

Sudden losses, such as death of a loved one and non-death loss, can cause memory of trauma (Monique, 2018). Loss that is not related to death includes sudden loss of a home or a precious item, amputation of a limb and removal of a body organ. Unresolved memories of a departed soul or lost item recur and may harm the individual. Grieving period is characterized with a sense that life seems to have stopped (Boss, 2011). In a study of childhood grief in school settings, vignettes were collected. It was reported that, grieving individuals feel guilty and may blame themselves for not saving their loved ones (Cohen and Monnarino, 2011). The memories of loss may affect psychobiosocial constructs such as self-esteem and social competence of the adolescent. Adolescent needs to adjust to abrupt losses so as to regain socialization skills and self- esteem. For example, amputations that arise from illnesses or accidents can lead to inability to carry out activities of daily living. Memories of trauma after amputation cause phantom limb sensations which affect 80% of the amputees (Neil, 2016). Rehabilitation enables amputees to take charge of

their lives. Acute stress develops at the onset of disability but subsides with time (Hamanaka, et al., 2006). Accidents contribute to trauma experiences among individuals, especially road traffic accidents causing disability and painful memory. Trauma in early years alters development of the right brain; the part that process socio-economical information therefore it affects the personality of the adolescent with physical disability. From integrating scientific studies, Schore has confirmed that relational trauma at childhood highly affects the attachment bonds of an individual (Schore, 2010), relationships and social competence. While studies have addressed prevalence of trauma and events that may lead to trauma, there is need to carry out further research on influence of memory of trauma events on individuals.

2.3.2 Triggers of Memories of Trauma Experiences

Memory of trauma may be triggered by stimuli such as event or senses, which cause recall of painful experiences. Triggered memories could be either explicit or implicit memory, based on the state of a person during the event or place where trauma occurred (Baird, 2008). Triggered trauma memories may be painful, terrifying, shocking or cause unpleasant feelings. Explicit or declarative memory cause conscious recallections such as recurring thoughts or hyper arousal, while implicit memory is a behavioral response of trauma (Hine & Tsuchima, 2018). Explicit and implicit memory can be triggered at the same time. Emotionally disturbed individuals categorize events rather than remember a single event, this is considered to be a defense mechanism for self protection from perceived harm by memories (Williams, et al., 2007). The triggered memories are brought

to consciousness by a stimuli that acts as a switch (Walker & Skowronki, 2009) bringing to awareness of events that were seemingly forgotten. Triggered memory has sensory similarity with the present stimuli, before or after the event. Recall of the memory may be influenced by dissociation whereby one ceases to register and comprehend disturbing experiences therefore failing to encode the event accurately.

Triggers of memory include; annual or monthly recall of traumatic events, or reliving the incidence (Hwang & Hyun, 2013), visiting the site of the trauma event, or upon seeing, hearing, or smelling something, taste or sensation of the body that resembles what was there during the trauma event (Ehlers, Hackman & Michael, 2004). For Adolescent with physical disability, memories of trauma may be triggered by environments such as hospitals, scars, absence of limbs, and presence of mobility appliances and /or the presence primary caregivers.

A study carried among 12 adults in London explored the possible triggers of unpleasant memories. The participants reported triggers of memories of traumatic events as including sensory experience (7), anniversaries (6) emotions (4) upset with people (3), other people upset with them (2), media (2), being touched in a certain way (1), altered state of consciousness (1). They reported physical memories (Somatization), visual and emotional experiences (Hiskey, Luckie, Davies & Brewin, 2008). The triggers of unpleasant memory identified in this study may affect psychobiosocial constructs, an exploration that the current study carried out.

The extent of memory of trauma is influenced by the triggers of memory that occur. Trauma creates scars on memory resulting to vivid and consistent recollections over a long period (Porter & Peace, 2007; Ehlers 2010).The triggers to this memory usually interact with the scars forming a relived memory. The recalled content determines how one moves on from their trauma experience towards healing. A study carried out in Virginia, used a narrative approach, with vignettes of the participants' reports of cases of trauma, like horrible killings in Virginia Tech University, African clients narrating violence and murder in villages, physical abuse and sexual abuse. The clients reported that they relived trauma when they narrated the incidences (Halligan, 2008). This kind of trigger of memory may interfere with the normal functioning of the victim. Intrusive memories are triggered when a stimuli similar to the event occurs shortly or later after the traumatic event. Walker et al., (2009) reports that negative events registered increased rehearsal of the event and this contributed to affective fading. In essence the triggers contribute to resolving of the trauma experience. There seem to be no discussion on adolescents with physical disability who are affected by memory of trauma while focusing on selected psychobiological constructs.

Triggers of memory may be psychopharmacological or psychological such as threats to a victim, memories triggered during a counseling session (Uttl et al., 2006), and rehearsal (Walker, Skoronski, Gibbons & Ritchie, 2009). A study carried out in Zurich reported triggers such as place, person, and color are stimuli that cause release of hormones to respond to triggered memory (ETH Zurich, 2008) and another studied odor related memories in a population in the USA (Hertz, 2016). Another study in the USA confirmed that when situations highly resemble the original traumatic events they create hot spots in

the memory of trauma (Grey & Holmes, 2008). This translates to emotions that affect normal functioning. In Africa, empirical data is wanting regarding memory of trauma. A study confirmed that memories were triggered and stored in the form of music (Moniot et al., 2010). Most empirical studies inform on stimuli that triggered memory, while this paper focused on the relationship between memory of trauma and psychobiosocial constructs.

The next section explores the effect of memory of trauma on psychobiosocial constructs.

2.3.3 Impact of Memory of Trauma on Individuals.

Memory of events experienced over time is referred to autobiographical memory (Fivush, 2011). The impact of trauma may result in lost memories due to dissociation, a state in which one temporarily loses touch with reality as a way of avoiding painful experiences (McGrath & Turvey, 2014). The lost memories manifest through dissociation, where by one resists to come to terms with the trauma event or thoughts. The lost memories are an impact of trauma on thought processing. Studies on prevalence of trauma events indicate that adolescents' exposure to trauma, in Kenya, is fairly high (Nyangwecha et al., 2018; Atwoli, Ayuku, et al., 2014; Harder et al., 2012), therefore the occurence of memory of trauma is equally high. No study has addressed the issue on the impact of trauma among adolescents. The age at which trauma occurs and the impact of trauma interferes with psychobiosocial development. More so adolescents with physical disability are highly predisposed to the memory of trauma therefore compounding issues of development.

A study done in the United States (US) on long term memory for childhood events reported that when the impact of trauma is high then the memory of the trauma will be accurate (Gails, Goodman, Quas et al., 2018). Memory is highly influenced by an individual's experiences and responses. Another study done in the US to assess memory of trauma and trauma words, found that, participants who had experienced childhood sexual abuse, better recalled trauma words and not neutral words (McNally, Rusciasc & Perlman, 2005). The ability to recall trauma was due to the impact of trauma experiences which were etched in the mind to an extent that triggers of trauma stimulated the memory through the meaning of the words. Memory in the current study was done through exploring documentation and narration of the trauma event hence the triggers of the memory. A longitudinal cohort study that was done in southwest England among 13 year-olds and their primary caregivers, using questionnaires, to assess autographic memory of mothers and caregivers, established that most participants had autobiographical memory of trauma at an early age. Moderate experience of impact of trauma events was associated with slight reduction of overgeneralized memories and increased over generality occurred with severity of the events indicating the impact of the trauma (Crane, et al., 2004). It is possible that the overgeneralised memory could be associated with trying to fill up the information lost during dissociation as a result of impact of the trauma. Autobiographical memory of trauma can be used to establish the impact of trauma, which was not explored in the reported studies.

The impact of memory of trauma manifests as; recall of the trauma event, numbing responses to the surrounding, lack of desire for life, and repetitive thinking about the

trauma (Mohobey-Ahari, 2014). A study carried out in the US using group therapy, sampled women who had experienced trauma and found that 12% remembered part of trauma from abuse while 19% had forgotten the abuse for a while (Freyd, Schooler & Sirers, 2002). The extent of memory of trauma is indicated by how much one recalls the event and it varies depending on the type, time, and developmental stage, impact, of the trauma and dissociation episodes.

A study carried out in Latin America reported that 77.8% experienced physical abuse, neglect 65%, and sexual abuse 46%. The study findings concluded that there was a significant positive relationship between traumas and a variety of psychopathologies in adulthood (Waikamp & Serralta, 2018). The trauma may have been forgotten fully or partly depending on its impact or during a dissociative episode as the event occurred. Yet in adulthood it causes psychopathology, meaning that the memory of trauma is stored then later it affects the person through developmental stages.

Rutwoski, (2007) studied effects of trauma events on development of personality among victims of political persecution in Poland, using a sample of 329 participants. The study established that childhood trauma affects development of personality after memories of the persecution fade. This means that memory of trauma impacts on trait formation of the participants therefore influencing social competence. This study did not report on adolescent with physical disability and psychobiosocial constructs though personality influences social competence and self-esteem of an individual.

In his study Bremner (2006), researched among traumatized adolescents in Beirut and established that adolescents with PTSD experienced deficits in academic achievement. Trauma and memory of trauma negatively impacts on academic performance by interfering with the learning processes and memory. This is because trauma has a broad effect on the brain leading to neurochemical imbalance. Malizia, (2017) carried out a literature review that explained that trauma relates with the ability to process emotions, pain, psychological status, memory and concentration thus memory of trauma can affect learning processes especially during dissociation episodes. The report on deficit in performance indicates that trauma may influence social competence of the participant. The current study explored more of the relationship between memory of trauma and social competence.

Pat-Horencyzyk and colleagues (2007) did a study in Israel based on a population of 409 youths, aged 15-18 years, who had been exposed to acts of terror. The subject of the study was the relationship between exposure to acts of terror, post traumatic symptoms and risk taking behavior, data was acquired using diagnostic interviews. They found that adolescents who were exposed to continuous threats of terrorism had high levels of risk taking behavior and their severity increased with greater exposure to terrorism. Impact of trauma on behavior would also affect psychosocial constructs an area that needs to be explored more.

Nasongo and Muola (2011) carried out a study in the Mount Elgon region of Kenya, using adolescents, in a community that had been repeatedly raided by militants. Their study established that not all adolescents were affected by the trauma events. This outcome

indicates the possibility that impact of trauma and associated memory vary depending on more factors other than exposure. A recent study in western Kenya among 14 years and less reported that 87% experienced trauma events in the streets, 88% in the children's institutions and 75% in households (Atwoli, Ayuku, Hogan et al., 2014). This is a very high level of exposure and the impact of the memory of the trauma prevails over a longer time in the adolescent's life. The impact of memory of trauma may cause health problems such as somatic preoccupation, sexual acting out, suicidal ideation (Feather, 2007), psychopathologies (Ninjehuis, 2007; Collins, et al., 2007), inability to trust, antisocial behavior, feeling insecure and having an irresponsible lifestyle, all these are prompted by impact of memory of trauma. Child abuse breeds dissociative amnesia, dissociative identity disorder, hypochondriasis or conversion disorders (Bremner & Marmar, 2009), a product of suppressed or repressed memory, which can be related to impact of trauma. Since adolescence is a crucial period of character and identity development (Schore, 2010), trauma events in childhood and adolescence influence their development as explained in psychoanalysis theory. The impacted of memory of trauma causes behavior that reflects in social competence self esteem, presentation of dissociation and somatization.

2.3.4 Relationship between Memory of Trauma and Selected Psychobiosocial Constructs

For the purpose of this study, the following psychobiosocial constructs were selected and explored; dissociation, self- esteem, somatization and social competence. There is a relationship between disabilities, especially acquired physical disability with traumatic

experiences (Andolo, 2019). People feel at their best when they are independent, attached, happy with themselves and can idolize others, because this improves their self-esteem and stabilizes their social competence yet a trauma event may transforming the situation. The following section will explore selected psychobiosocial constructs in relation to memory.

2.3.4.1 Relationship between Somatization and Memory of Trauma

Somatization is damaged discernment of the body and it causes the body to process, recognize, express emotions and interpret memories through development and presentation of physiological symptoms (Schmid, Petermann, & Fegert, 2013). Emotions moderate memory and visual imagery predicts the strength of recollection of an event (Rubin, 2005). When the trauma event or memory is overwhelming, the individual presents medically unexplained symptoms that are referred to as somatization (APA, 2013; Hartman, Borghuis, Lucassen et al., 2009). An empirical articles study reported that 25% to 50% of primary care visits indicate prevalence of somatization (Van Revenzwaaj, Hartman et al., 2010; Hartman et al. 2009). Somatization symptoms may include nose bleeding, high blood pressure, ulcers and asthmatic attacks. About 80% amputated people may feel part of the amputated limb itching or hurting; this is referred to as phantom sensations or pain (Neil, 2016, Pizzi 2008). These symptoms are as a result of stress and memory of trauma events (Uttl et al., 2006). Some of the symptoms of somatization identified in a study in South Africa include feeling heat from the inside, the head, crawling sensation, heaviness or soreness and is related to adaptation to trauma such as abuse, medical history or family dynamics. The study established that 50% of the children experienced somatization

(Idemudia, 2007). A cross sectional study on patterns and types of somatization disorder in secondary schools was carried out in Nigeria. The authors concluded that psychosomatic problems exist and are on the rise (Nkwocha, Chinawa, Onukwuli, et al., 2017). A descriptive study carried out in Kenya on prevalence of types of mental disorders indicated that 13% of a sample n=169 presented somatoform disorder (Ndetei, Aillon, Khasakala, et al., 2013). Harder et al. (2014), reported that high internalizing of problems among the youth impoverished youth in Kenya contributed to somatic complains. In the study, 45% of youth reported borderline to clinical somatic complains syndrome. The above studies confirm the prevalence of somatoform symptoms among adolescents. However specific data regarding adolescents with disability is lacking.

The onset of somatization is intensive thought processing and response to triggers of trauma memories (Malmoc & Laidlaw, 2010). A cross section study of Italy emphasized on assessment of children for somatization among other psychopathologies due to the prevalence of trauma (Luoni, Agosti, Crunola et al., 2018). Memory of trauma at times causes body symptoms that present as somatization. Most adolescent with physical disability are prone to trauma or have a disability as a result of trauma and this may result to somatization as a way defense mechanism that helps them deal with the disability. The current study explored the relationship between memory of trauma and somatization.

A comparative study on adolescents suffering from migraines, chronic fatigue for more than six months (n=179) and others who did not present any symptoms (n = 32), explored anxiety, depression, somatization functional disability and illness attribution. It concluded

that presence of disabling chronic condition results in internalizing thoughts and emotions (Smith, Mark, Hertz,Womack, & Marsigan, 2003). The conclusions are in agreement with another study in Italy among preschoolers reported that internalized thoughts lead to externalized behavior and there was an association between maltreatment and trauma symptomatology (Milot et al., 2010). These results indicate that the internalized emotions and thoughts which implicate memory of trauma lead to somatization. Profound stress from trauma that has not been dealt with and internalized feelings may cause deterioration of mental health (Kim & Chicheti, 2006). A cross sectional study among 134 subjects, 65 healthy volunteers and 69 asthmatic patients reported that asthmatic patients were at risk of psychiatric problems such as somatization (Samaha, Elsaid, & Sabri, 2015). In this case, asthma was the stressor that led to somatization. Any form of psychological distress is likely to cause somatization. The relationship between memory of trauma and somatization was explored in the current study.

A study on the role of physical injury in motor and sensory conversion symptoms which involved 869 patients with physical injury, general weakness of the body, movement disorders, hemiparesis and neurological issues established that injury trigger psychological processes leading to conversion symptoms and disability (Stone, et al., 2009). Hyper arousal increases anxiety, reduced cognitive processing because part of the brain that informs emotional interactions and affects meanings derived from events is limited in its functioning (Bainrd, 2008, Neil, 2016). This explains why emotional numbness, irritability, uncontrolled anger, high sensitivity to surroundings, imagination of danger or pain is experienced by trauma victims. A study that focused on divorce and self-esteem,

reported that girls experience psychosomatic reactions due to conflicts that happen in families (Ikiz & Cakar, 2010). Divorce is a trauma event that is characterized by sudden absence of a parent, abandonment and a sense of loss. Memory of the loss may influence social competence since children blame themselves for the divorce of their parents.

Meyer, Fleischman, Young, Gold, (2020) studied a population of 53 girls and 16 boys to find out the quality of life that they had. They concluded that that there was a significant interaction between quality of life and somatization. A study on quality of life following injury indicated that a range of psychobiosocial factors predicted returning to normal activities (Gopinath, et al., 2015). Quality life that is hindered by psychosomatic symptoms may delay commencement of normalcy after trauma. This delay is as a result of the influence of the memory of trauma. Early trauma affects development of the right brain which is the hemisphere that specializes in processing of socio emotional information and bodily states therefore impacting on the individual's psychobiological development (Schore, 2010) which present as somatization.

Most studies on somatization focus on adolescents and not adolescent with physical disability. The current study explored memory of trauma among adolescents how it related with somatization. The next section will discuss self-esteem.

2.3.4.2 Relationship between Memory of trauma and Self-esteem

Self-esteem is defined as an individual's general emotional assessment of self-worth and value. This is a person's own assessment of worth (Bhattacharjee, & Chhetrik, 2014). High

self-esteem enable people to cope better with trauma as their resilience is higher (Gao, Yao, Yao et al., 2019) as compared with people with a low self-esteem. In a study carried out in China by Gao et al., cross sectional study was done among adolescents, they concluded that self esteem is a good tool when dealing with stressful events because it increases resilience. Self- esteem is determined by genetics, body image, self-concept mental health and socioeconomic factors as well as the socialization of the individual.

A longitudinal study of child maltreatment, mother-child relationship and maladjustment indicated that self-esteem and social competence plays a role as a mediating link between relational risk and child maladjustment (Uttl et al., 2006). This therefore means trauma caused by maltreatment contributed to low self-esteem due to the poor adjustment to the event hence influencing personal relations. The current study further explored memory of trauma and if it contributes to levels of self-esteem.

Another study compared self-esteem, self-concept of learners with disability with students who did not have disability in schools in Ardabil province high schools, (N=30) within the age of 10 to 20 years. The study used a questionnaire for data collection. The findings showed that a significant negative correlation between self-concept and self-esteem of students with disability. The self-concept of an individual contributes to their self-evaluation (Tanya, 2005). This means that more of the participants who had less levels of disability had a better self-concept and self-esteem. Though the study did not discuss trauma events, acquired disability from a trauma event may result to memory of the event and this may have influenced self-esteem.

A study among adolescents with physical disability and visual disability showed that majority of the participants (N=120) had high and moderate self-esteem (Nair & Anuradha, 2014), both genders scored high self-esteem, hence disability and gender may not necessarily be predictive. Though this study may not have focused on memory of trauma it measured the self- esteem of the adolescent with physical disability which was studied in the current study.

Another study that was conducted in India, on quality of life among adolescent, with physical disability undergoing integrated education reported that 72% were satisfied with the way they were while 80% had negative feelings about self. These findings indicated that adolescents who felt bad about themselves had a low self-esteem though some accepted themselves with the disability (Seena, 2013). A meta-analysis of published papers on self-esteem and disability reported that minor injuries may be from accidents or congenital physical disability negatively affects the young people's self-esteem such that the greater the disability the higher the self- esteem (Miyahara, & Piek, 2006). The results of studies on self-esteem differ probably because of cultural issues, social aspects or individual differences. However the findings discussed in the two studies referred to the self-esteem without checking the environment for trauma which may have contributed to the findings an area the current study explored.

Emotional support from parents helps to enhance self-esteem among adolescents (Fagan, & Churchill, 2012). A relational survey among 163 females and 94 males in high schools in Turkey concluded that there was a positive relation between self- esteem levels of

adolescents with perceived social support levels from friends and family (Ikiz & Cakar, 2010). Social support therefore is paramount in management of self-esteem yet this study did not factor in the relationship between trauma on self-esteem and social competence therefore the constructs were further explored in the current study.

Abraham (2013) did a descriptive study by on the quality of life of children with mobility disability using a sample of 25 children. The study established that majority of them accepted their self-image; hence had high self- esteem however discussion on the effect of trauma on self-image was not included in the study yet disability may be caused by trauma or predisposes one to trauma. Self-image contributes to self-acceptance and placing worth and value on self. In a thematic synthesis of reviewed documents with core themes of individuals, family and community, some articles described loss of self- esteem as a consequence of trauma (Von Wesel, Boeje, Alistic, & Drost, 2011). Low self-esteem is related to failure to accept and value the new self that has physical disability. This finding was similar to a narrative reconstruction study of life history among undergraduate students to find out whether trauma affected them. The findings showed that trauma experienced was attributed to their low self-image and self-esteem (Slaninova, & Stainerova, 2015). Occurrence of trauma leaves memories that may influence the adolescent with physical disability's self-worth.

Low esteem may lead to frequent guilt, withdrawal, accepting unfavorable appraisal, under performance and social inhibition (Omolayo, 2009). In his study on trauma among adolescents in Nigera, Omolayo concluded that gender, disability and ability do not

significantly affect self- esteem. The study however did not explore memory of trauma among the adolescents. A study sought to find self esteem among the deaf in Kenya using Rosenberg self esteem test. The results reported that girls presented a higher self esteem (Awori, Mugo, Orodho, Karugu, 2010) however this study did not refer to memory of trauma. Mutavi, Obondo, Mathai et al., (2018) carried out a longitudinal study in gender based violence recovery centers on incidence of Self esteem among children exposed to sexual abuse in Kenya. Seventy five percent reported average scores of self esteem, 18.3% high self-esteem while 6.3% posted low self-esteem. They recommended that parents should be involved in restoring the children's self-esteem. The low self-esteem affected the learning process. Sexual abuse is considered as a trauma event and the effect of the memory of trauma may affect the child's cognitive development and interactions therefore the weak performance in school. In an earlier study on children who were defiled in Kenya, Mutavi et al., (2016) reports that children who are defiled have low self-esteem and poor social relationships. From the empirical studies it is evident that trauma influences self esteem. Gao et al., (2019), emphasizes that self-esteem is an important tool that helps cope with stressful events.

Relationship between memory of trauma and social competence is discussed in the next section.

2.3.4.3 Relationship between Memory of trauma and Social Competence

Social competence is the capacity of an individual to accomplish goals in social interactions while sustaining positive relationships with others over time and across

relations to increase efficacy, relevance, emotional health and social adjustment (Rubin, & Rose-Krasnor, 2015; Arkish, Divya & Sinyms, 2014). Social competence is essential for one to fit in the community. Children with impairment are reported to be lonelier and have weaker social competence (Beauchamp, et al., 2009). Social competence influences behavior or actions displayed in a social setting such as affiliations, aggression, and withdrawal (Rubin, Bukowski & Bowker, 2015). A study carried out in Philadelphia among adolescent girls seeking treatment following rape reported that avoidance of trauma related reminders, feeling distant from others and emotional numbness highly affected their social functioning (Mclean, Resenbach, Capaldi & Foab, 2013). This study indicates that memory of trauma may affect social competence of an individual, an aspect that was studied further in the current study.

Adolescents cope with trauma through; risky behavior, power struggles with parents, emotions or moodiness, which may be antisocial (Eckes & Radunovich, 2010; Steele, 2007) and may cause them to be rejected in social settings, leading to social isolation because of inability to maintain personal relationships (Abraham, 2013). Children with impairment are reported to be lonelier with lower social competence than healthy children (Beauchamp, et al., 2009). According to these studies, it is expected that adolescent with physical disability display weak social competence based on their trauma experience and disability.The current study explored further the findings on social competence.

A longitudinal study in India of children 3-6 years of age at the time of injury reported 23 with severe trauma of the brain, 64 with moderate and 119 with othorpaedic injuries were

given parental ratings, inventory of executive function and child behavior questionnaire. The findings indicated that brain injury at a young age negatively affected executive functions and social competencies (Ganesalingham, et al., 2011). The functional aspect of the adolescent's brain as well as their trauma memories affected the development of social skills. The adolescents' perspective on disability is associated with personal acceptance (Jalayondeja, et al., 2013), loss of ability to carry out activities of daily living (ADL) as a result of illness or injuries from accidents or abuse, reduces social participation due to impairment therefore limit social competence through reduced interactions. The pain experienced after injury or surgery may cause trauma, therefore it would be important to find out if it contributed to the difference in social interaction.

A study done in South Africa involving 214 children aged between 8 to14 years assessed psychobiosocial factors that influence the participant's understanding of sexual trauma. The survey used Beck's depression inventory, trait anxiety inventory, trauma profile and a self report score. The results showed that social competence was associated with parental support. Children who lacked parental support scored less than those who had support (Kyung, Choi & Shin , 2011). It proved that parenting plays a critical role in developing social competence for coping following a traumatic experience. A review of post divorce parental conflict and adolescent delinquency indicates that the adolescent social problems are influenced by their parent's behavior (Esmaili & Yacoob, 2011). Children find refuge in parents and significant others therefore child-parent interactions are significant event of trauma (Malizia, 2017). When a parent poorly manages trauma, he lacks sufficcient skills to support Adolescent with physical disability to develop adequate social skills yet the

memory of the trauma lingers in the adolescent's mind. This study explored memory of trauma and how contributed to the social competence other than parental support. In another study done in Italy on psychological trauma in children and adolescents, using sociological profiles, Malizia (2020), established that the children lacked problem solving skills and this was associated with the experience of trauma. Problem solving is key in social interactions.

Adolescents have vivid memory of their trauma experiences through flash backs and reliving the events (Vanwesel, Boeifje, Alistic, & Drost, 2011), which may cause dissociation in the process affect maintenance of social networks. A narrative study in the USA on challenges of children with disability reported that, physical disability emotionally drains because of the perception that people do not understand them; this causes internalised anger, frustration and confusion (Resenbach, Capaldi, & Foab, 2013). Feelings of lack of understanding emanate from the fact that the adolescent with disability has memories of trauma that are catastrophized and distorted therefore interfering with their social competence.

A four year longitudinal study on adolescents carried out among Cambodian refugees indicated that premigratory exposure to political violence and post migratory psychobiosocial adjustment over time. The adolescents who were highly exposed to violence reported more positive social adjustment and less mental health symptoms than those less exposed (Kim, & Cichetti, 2004). This shows that as one experiences trauma, they learn skills that help them cope. The memory of trauma may enhance their social

competence because of resilience that is developed. Findings of the study show that the trauma experienced led to resilience, however it did not refer to of trauma and its contribution to social competence, an area the current study explored. Mutavi et al., (2018) in a longitudinal study reported that defilement is associated with psychosocial problems and low success outcomes. There seem to be limited studies on social competence in Kenya.

In a study on development of an indicator for adolescents on social competence (Blumberg, Carle, O'Connor, Moore & Lippmann, 2008), the National Survey of Children's Health (NSCH), a social competence scale was preferred because it had both positive and negative constructs therefore more strength to measure social competence among children and adolescents. The current study some adopted items in the NSCH social competence scale to explore social competence of the Adolescent with physical disability.

The next section will discuss the relationship between memory of trauma and dissociation.

2.3.4.4 Relationship between Memory of Trauma and Dissociation

Dissociation manifests as alterations on sense of time, space or person, that affects consciousness following or during a trauma event. Dissociation marks discontinuity of normal integration in psychobiosocial systems of sensations, functions which makes one have a feeling of a different sense of self and constitute personality (Karpee & Jerram, 2015). DSM-V described dissociation as interruption in normal integration of consciousness memory, altered Id, emotions, perception, body presentation, motor control

and behavior (APA, 2013). The following dissociation factors may occur during memory of trauma or event; depersonalization or derealisation, amnesia and absorption. Studies indicate that 10% of the general population reacts to trauma with a strong tendency of dissociation (Schmid , Petermann, & Fegert, 2013). Intrusion in dissociation, include hearing voices, depersonalization or derealisation, formulated thoughts, urges, emotions and actions (Delland O'Neil, 2009). During dissociative Amnesia, individuals are not able to retrieve autobiographical and explicit memory hence lack of chronological account regarding the traumatic event. Body memories indicate that an event occurred, is encoded and is available in the memory (Uttl, Ohta & Siegentharl, 2006). Amongst adolescents with physical disability, dissociation occurs because of the painful events preceding onset of disability or during intrusive procedures such as surgery.

Trauma may lead to Psycho-form dissociative symptoms that translate into physical manifestation of flash backs and hyper arousal or numbness. Somatic symptoms disorder is a form of trauma related dissociative process (Luoni, 2018). Somatic dissociative symptoms include conversion, physical pain, failure of body organs and motor functions (Kienle, Rockstroh, Bohus, 2017). Dissociation is a psychological learnt reaction to stimuli that is informed by defensive operations which are characterized by, compartmentalization, shifting of identity and protection from unbearable pain (Padhy, Jhanda & Malhotra, 2016). Dissociation occurs in many forms in daily life. Dissociation interrupts the individual’s concentration and interaction with the environment. A longitudinal carried out in Europe with a population of 250 participants concluded that somatization occurs when a previously dissociated traumatic memory is linked to the sensori motor responses during

the previous trauma experiences (Bob, Selesora, Rabock et al., 2013). This therefore means that dissociation is a product of memory of trauma.

Dissociation has positive symptoms that remove focus on the event therefore protecting the victim from harm such as: flash backs, hearing voices, re-experiencing trauma, hyper amnesia affective and cognitive components sensory distortions, pain, tics panic and somatoform presentations. Negative symptoms do not allow the individual to process the trauma and they include amnesia, loss of affective feelings, depersonalization, emotional anesthesia, and loss of sensory, perceptual and affective motor functions (Levesque, 2017; & Rosenthal, & Freyd, 2015). Depersonalization inhibits individuals from the actual effect of the event so fail to interact adequately with memories of trauma.

Another study reported 10% of patients attending general psychiatry clinics presented dissociative disorders (Ninjehuis, 2007). These studies however were not specific to persons with disability or adolescents.

Literature study on ‘Dissociation a major feature of Complex PTSD’ indicated that traumatized individuals are characterized with structural dissociation of personality which causes the action systems of daily life to be inhibited during threatening situations (Vanderhart, Nijenhuis & Steele, 2005). This explains the inability to remember some events following trauma experiences, inability to take action and at times remembering events in bits. The current study enquired the relationship between extend of memory with dissociation.

A study in Sweden investigated dissociation as an outcome of childhood trauma. Snowball sampling method was employed to recruit participants to respond to the questionnaires. The results showed that the cause of dissociation is traumatic relationships in childhood (Richardson, Murray & Bates, 2007). Dissociation may lead to frequent day dreaming, emotional numbness, forgetfulness, unaware of surrounding events. Adolescents are reported to faint as a dissociative response inflicting their brain and body during trauma or when they remember trauma (Green & Myrick, 2014). While most studies focused on dissociation as an outcome of childhood trauma, data on adolescents with disability and how dissociation relates with memory of trauma is a gap that needed to be filled. Proneness to fantasy and negative resilience has been related to childhood trauma and dissociation (Horwood, 2007). Dissociation most of the time influences the ability to concentrate therefore may influence memory, a fact that the current study has explored.

A study that was done in the Northwest Territory of Canada among 143 survivors of childhood sexual abuse, using quantitative data for symptoms and qualitative data for in depth examination of emergence of traumatic memory, established that dissociative survivors had more symptoms since trauma was re-associated with the memory that triggered emotional crisis (Malmoc, 2010). While this study identified the relationship between dissociation on cognition, it did not explore the relationship between memory of trauma and psychobiosocial constructs among adolescents with disability.

Adolescence increases chances of experiencing dissociation due to adaptive risk taking behaviors that are trauma oriented. Dissociation is formed by reduced production of

specific memories that help the brain to avoid painful emotions related to trauma (Moore & Zoellener, 2007; Ninjehuis & Vanderhart, 2011) especially in childhood. There seems to be a gap in the information available about dissociation among adolescents in Africa. The next section will discuss mitigation of effects of memory of trauma.

2.3.5 Mitigation of Effects of Memory of Trauma on Adolescent with Physical Disability

Mitigating effects of memory of trauma contributes to improving the quality of life of adolescent with physical disability. Various therapies have been employed to alleviate the effects of trauma and later memory of the trauma. These therapies include cognitive behavior therapy, play therapy, art therapy, pharmacological therapy, psychodynamic therapy and psychological debriefing (Wethington, et al., 2008). The aim of therapy is to alleviate the psychological aftermaths of the traumatic event. The weakness of psychotherapy approach while working with Adolescents with Physical disability is that, the client works with the therapists while the client's immediate social environment is not involved in the healing process. This gap pulls the client back, interfering with his healing.

A study to find out whether self-compassion could mitigate the association between early maltreatment history and later emotion regulation problems in young adulthood was carried out. The study reported that self-compassion highly contributes to the intervention of emotional regulation for adolescents with childhood maltreatment (Vettese, Dyer, Lil & Wekerle, 2011). However, the program can be affected by inconsistency of the therapist or the client which could jeopardize the outcome.

A study on preventing intrusive memories after trauma through brief intervention involved a computer game played in the emergency department. The study involved a control group that had attention placebo delivered within six (6) hours of motor accident, with a randomized controlled sample compared impact on the number of intrusive memories successively. The study concluded that preventive mental health interventions should be offered post trauma. For one week, participants who received the exposure treatment did not experience intrusive memories (Lyadurai, et al., 2018). Replaying a scene that is equally traumatic though it was used to alleviate the intensity of the trauma is related to progressive desensitization technique. The disadvantage of this technique is that it may not be applied in areas where computers are not available and the patient has to be conscious and in their right mind for the treatment to be effective. There is a likelihood of compound effect of memory of trauma after the treatment.

Creative interventions such as story telling, drawing, verbal triggers, completing sentences, journaling, writing poems are used to resolve most of the child and adolescent traumatic grief (Edgar-Bailey & Kress, 2010). This is cognitive behavioral approach and would be applicable for trauma victims who are cognitively functional. Some adolescent with physical disability may be limited in this approach depending on their ability to express themselves in the given areas.

Problem focused approach provides social and emotional support therefore contributing to caregiver's adjustment. Support enables them to develop adaptive skills which enable them to support adolescent with physical disability that were affected by trauma. An empowered

caregiver, is able to support an adolescent with physical disability through adjustment as they work through memory of trauma. A model referred to as Wrap around model consisted of a team led by a trained care coordinator and a family member. It has three phases i) engagement, team preparation and initial plan development ii) plan implementation iii) Transition (Bruhns et al., 2010). This model requires intensive training, funding and availability of mental health support which is not available in most African countries. Another program that focused on parents in Oregon referred to parent management training (PMTO) included parental involvement based on the knowledge that parents may react in a manner that affects their children, (Patterson & Forgatch, 2010). This model is effective because parents shape the character and responses of children. However, the role of the rest of the community in helping individuals who affected by trauma was not factored in.

A multi-tiered school based system of support for traumatized students introduced a continuum tier so as to improve the school environment and conditions for learning, social, emotional functioning, mental and physical wellbeing of the students. Trauma from bullying, violence and indiscipline were checked and the students at risk were referred for individualized programs. Tiers 2 and 3 provided intensive interventions. Community based service providers supported the coordination of small groups and individuals would be involved (Rossen & Cowan, 2013). This model would work best if the school has functional crisis management systems, has included prevention, preparedness, immediate response and continuity for long term recovery. The program is confined in the school the student’s environment and no follow up out of school.

The models discussed above were considered to manage the effect of memory of trauma on children and adolescents. Most of the models were designed for the general population. However the adolescent with physical disability have more factors that need to be considered in the process of mitigating trauma.

2.4 Summary

This chapter has discussed empirical studies on memory of trauma in the context of triggers of memory, extent of memory, impact of trauma, events that cause trauma and psychobiosocial constructs such as dissociation, self-esteem, social competence and somatization. From the empirical studies it is noted that memory of trauma may have a relationship with psychobiosocial constructs. Psychoanalytic theories guided the study with focus on defense mechanism, repression, suppression and dissociation. Empirical studies reported trauma events such as, accidents, amputation, physical and sexual abuse, post-election violence as some of the events that led to memory of trauma. Sources of triggers to memory of trauma were stimuli such as the five senses sight, smell, touch, taste, sound. Therapy or pharmacological application was the other trigger for memories. Dissociation factors included; derealisation or depersonalization, absorption and amnesia. Somatization as memory expressed through the body may be as a result of suppression of disturbing or painful thoughts of trauma. Results from studies on self-esteem varied from population to another. Most studies on persons with disability indicated low self-esteem apart from few studies. Social competence was reported though the participants were not adolescents with physical disability and the results did not refer to trauma. Mitigation of

the influence of memory of trauma was explored through studying the available models. Most models focused on the psychological did not have disability and it emphasized on the social aspect.

From the literature review, it is evident that there is information gap and empirical gap that needs to be filled because there is very little data or information that discusses the influence of memory of trauma among adolescents, and especially adolescents with disability. Related literature from Africa on memory of trauma, social competence, somatization and dissociation is very little and in some instances it provides very little information while some studies only provided the prevalence of trauma, somatization and self esteem.

Based on the literature review, a conceptual framework was constructed to guide the in providing information relevant to relationship memory of trauma and psychobiosocial constructs.

2.5 Conceptual Frame Work

TOPIC: Relationship between Memory of Trauma with selected Psychobiosocial Constructs among of Adolescent with Physical Disability

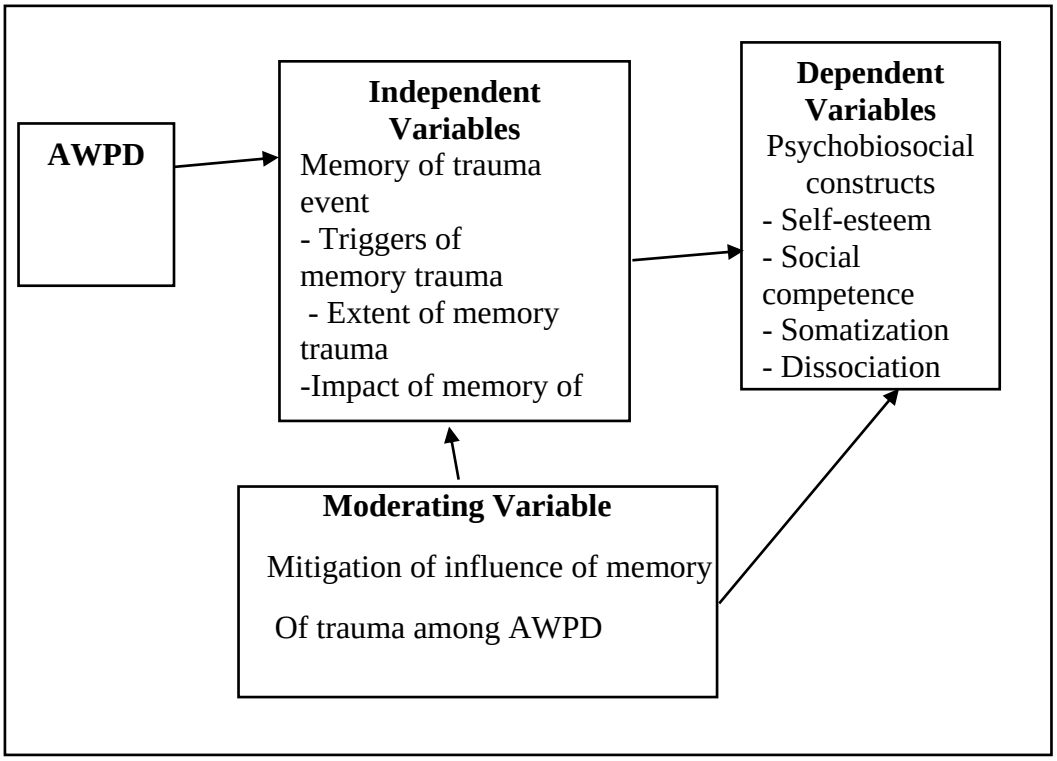

Figure 1.1: Conceptual Framework (Author)

The dependent variable referred to psychobiosocial constructs; self- esteem, social competence, dissociation and somatization. The independent variable was memory of trauma. Memory of trauma was studied through exploring triggers of memory of trauma, memory of impact of trauma, the trauma indicators and the extent of memory of trauma. The relationship between memory of trauma and pschobiosocial constructs was studied

through the variables. Mitigation of the influence of memory of trauma was considered as a moderating variable.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter covers research design, variables, and location of the study, target population, sample, sampling techniques and sample size, research instruments, validity and reliability, piloting of the study, data collection, data analysis, management and ethical considerations.

3.2 Research Design

The study adopted a mixed method design. Correlation and phenomenology designs were used because they provide for collection of indepth qualitative and quantitative data. Correlation was used to study the relationship between memory of trauma and self-esteem, social competence, somatization and dissociation. In this study, the relationship between memory of trauma and selected psychobiosocial constructs studied among adolescents with physical disability. Correlational research design was preferred because it is primarily suitable in establishing relationships among variables (Sekaran, 2006; Gravetter & Forzanno, 2012). In this study the relationship between memory of trauma and the psychobiosocial constructs was established. There was need for in-depth understanding of the experiences of Adolescent with physical disability on how memory of trauma affected their lives and how it can be mitigated. Phenomenology research design provides for the exploration of the participant's experiences (Rodriguez & Smith, 2018), hence qualitative

data. Qualitative data was used to understand adolescent with physical disability and hear their voices. The two designs therefore complemented each other to enable the study meet its objectives.

3.3 Study Variables

This study considered the following psychobiosocial constructs; self-esteem, social competence, somatization and dissociation as dependent variables, memory of trauma such as triggered memory, impact of memory of trauma and extent of memory, were treated as independent variables. Mitigation of memory of trauma was considered as the moderating variable. Demographic variables were used to provide the background and characteristics of the participants.

3.4 Location of the Study

The location of the study population was a national institution in Thika Municipality, Kiambu County. The national institution was selected because it hosted adolescent learners with physical disability who are drawn from most counties in Kenya. The diversity in the counties of origin provided a representation of different cultures and perspectives that greatly contributed to information for this study. Accessing the various adolescents with disability a problem therefore the location made it possible. Appendix VII shows the map of the specific location and distribution of the participants in the counties.

3.5 Target Population

The target population was adolescents with physical disability, between 13 to 23 years, studying in a national institution that hosted adolescents who had physical disability. The

population was selected because the learners provided a homogenous population since they studied in the same institution and experienced the same curriculum. Varied cultural exposure from the learners who came from different counties in Kenya enriched the data. The institution stratified learners, with physical disability (200) and those without physical disability (15 excluded from the study). For participation in the study, the researcher purposively targeted the learners with physical disability. The total student population in the institution with physical disability was 200. This institution was preferred for the study because of the location of the institution which was central, the learners came from different counties in the country, the developmental stage of the learners and diverse physical disabilities which provided vast data for the study. Table 3.1 shows the distribution of Adolescent with physical disability in the institution per class. The table excluded the learners who did not have physical disability.

Table 3. 1 Distribution of Learners with Disability

School	Form1 Boys	Form1 Girls	Form2 Boys	Form2 Girls	Form3 Boys	Form3 Girls	Form4 Boys	Form4 Girls	Total
Total	31	22	30	27	24	20	28	18	200

3.6.1 Sampling Techniques and Sample Size

Purposive, census and stratified random sampling was done for the selection of participants. Purposive sampling was done to select the adolescents with disability (adolescent with physical disability) who participated in the study. This ensured that only the learners with physical disability who had reported back to school on the day of data

collection, participated in the study. Purposive sampling was preferred so as to get rich information (Palinkas, Horwitz, et al., 2015) related to the study. Census sampling was done for the total population of Adolescent with physical disability (130) who had reported to the school at the time of school opening and data collection. Census method was preferred, because it contributed to reduced levels of variance since the population was small. Data collection was carried out for one day because the learners had a separate busy schedule after the reporting day. The focus group discussion involved 20 adolescents who had physical disability. Stratified random sampling was carried out to identify the 20 participants for focus group discussions. Sampling for the focus group discussions involved stratifying the institution into four classes as per form one, two, three and four. Five students were randomly selected from the rows in the classes to participate in the focus group discussion. The focus group discussions were divided by gender to facilitate open and free discussion among the participants. Two teachers were purposively selected to participate in interviews because they were the only counselor teachers in the institution. Purposive sampling for the teachers enabled the researcher to get participants who had required skills as per Etikan, Musa and Alkassim, (2016). In this study, the required skills of the teachers entailed having practiced counseling in the institution therefore they were familiar with the needs of the participants.

3.7 Research Instruments

Questionnaires were used to collect data. Subscales in the questionnaire were to identify trauma events, assess memory of trauma, impact of memory of trauma and the levels of psychobiosocial constructs such as social competence, somatization, dissociation and self-

esteem. The first subscale was a Trauma Indicator Scale (TIS), a sixteen item tool which was used to find out whether participants had experienced trauma. Some items of the trauma indicator scale that directly referred to memory were used to test the extent of memory of the trauma. The trauma indicator scale was developed using description of trauma from the Diagnostic Statistical Manual Fifth Edition (DSM - V), (APA, 2013).

The second subscale was to measure the Impact of memory of Trauma Scale it had fifteen items. This scale mainly focused on the consequence of memory of trauma on the adolescent with physical disability.

The third subscale was an adapted Dissociative Experience Scale (DES), a 28 item tool, which was used to measure levels of dissociation (Carlson, 1944) and was used to explore the relationship between memory of trauma and dissociation. Since dissociation occurs during or after the experience of trauma and is basically a stored sensori memory of the trauma event, this Dissociative Experience scale was preferred as a measure for memory of trauma.

The fourth subscale was the Rosenberg Self-Esteem Scale (RSES), a ten item - unidirectional scale that measured respondent's self-esteem (Rosenberg, 1997) and was used to find out the relationship between memory of trauma and self esteem. This test was preferred because it has been used across different populations and has provided reliable results on self esteem levels.

The fifth subscale was the Social Competence Scale (SCS), a ten item tool, which assessed social competence. Memory of trauma was correlated against social competence scores to determine whether there is relationship.

The sixth subscale was the Somatization Scale (SS), a 10 item, likert scale, a data collection tool which the researcher derived from DSM - V's indicators of somatization (APA, 2013). The section on somatization was used to develop a tool on somatization and was used to explore the relationship between memory of trauma and somatization. Standardized tools such as the Rosenberg Self esteem Scale measured self esteem and Dissociation Event Scale that measured dissociation levels were used across international communities hence reliable.

Qualitative data was collected using two focus group discussions and interview guidelines. The focus group discussions provided supplementary information for data analysis. Focus group discussions comprised of 20 participants divided into two groups, 10 male participants and 10 female participants. The focus group discussions were recorded using a voice recorder and transcribed to capture all the data. An interview schedule for the teacher counselors was used to enrich the information on memory of trauma. The data collection tools are found in the appendix II and III for questionnaires, Interview and focus group discussions.

3.8 Validity and Reliability

The researcher ensured that data collection tools had content and internal validity by using question items which were derived from the Diagnostic Statistical Manual V (DSM-V)

criteria that were relevant to the study. The tools that were derived from DSM-V included the trauma indicator scale and somatization scale. Information about symptoms of trauma, impact of memory of trauma scale and somatization was extracted from the DSM-V and used to formulate statements for subscales in the questionnaire. Use of the DSM ensured that the items for the subscales were reliable especially in measuring the memory of trauma. Standardized tools such as the Dissociation Experience Scale (DES) (Carlson 1944), Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965), were used and this ensured the validity of the tools. The standardized tools were preferred for the study among others because they had items that directly measured the constructs of interest such as dissociation and self esteem. The study used standardized tools which were simple for the participants to understand, interpret and respond to.

The questionnaires test items addressed all objectives of the study to ensured reliability of the study. The Rosenberg Self Esteem Scale, (Rosenberg 1965) has internal consistency of $\alpha = 0.77$, minimum reproductively of $\alpha = 0.90$ and alpha coefficients ranging from $\alpha = 0.72$ to $\alpha = 0.87$. Test and retest reliability for two weeks interval $\alpha = 0.82$ to $\alpha = 0.85$ (Rosenberg 1965).

The DES has a reliability coefficient of 0.84, split half reliability ranging from 0.71 - 0.96 with good internal consistency and construct validity (Carlson & Putnam, 1993). The social competence scale, memory of trauma scale and the trauma indicator was derived from the DSM V. The reliability of the instruments was determined by the pilot study which was carried out before the study.

Data from the interviews was recorded then transcribed word by word.

3.9 Pilot Study

The researcher piloted the data collection tools to ensure the following; that the questions were understood, the length was reasonable for participants, the instructions were clear, to estimate time that was required to respond to the tool and refine the research procedures. The pilot study was carried out in institutions for learners with physical disability in Kisumu (10) and Bungoma (10) where adolescents with physical disability in the region attended. The two counties provided a similar environment as the location of the study in terms of being a mixed school for adolescents with physical disabilities though the learners were from the same geographical area. The institutions were the only other institutions for learners with disability in the country by the time of piloting. The following are results from the pilot study.

Table 3.2 Reliability Coefficience of Bio data of the participants

Cronbach's Alpha	N of Items
.911	15

The cronbach's alpha at α= .911 is quite reliable therefore dependable.

Table 3.3: Reliability Coefficience of the Social Competence Scale (SCS)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.755	.773	15

The results of the pilot study indicated the reliability of the social competence scale at Cronbach's alpha of α = .755, which is a high indication that it was dependable.

Table 3.4 Reliability Statistics on the Dissociation Experience Scale (DES)

Cronbach's Alpha	N of Items
.847	28

The Alpha scale is quite high and reliable for the adapted DES. The test by Bernstein and Putnam (1986) had an internal consistency of 0.90 while in this pilot study it is α = .847 which indicates that the variation is not wide hence the reliability of the scale.

Table 3.5: Reliability Statistics on Impact of Memory of Trauma Scale

Cronbach's Alpha	N of Items
.886	15

The internal consistency of the Impact of memory of trauma scale is high α = .886 as indicated in the table above.

Table 3.6: Reliability Statistics of the Trauma Indicator Scale (TIS)

Cronbach's Alpha	N of Items
.623	16

The reliability of the trauma scale which was generated from the indicators of trauma on the DSM- V (APA, 2013). It is notable that the outcome is α = .623 above 0.5 therefore the internal consistency is relatively high and dependable.

Table 3.7: Reliability Statistics on the Extent of Memory of the Traumatic event

Cronbach's Alpha	N of Items
.285	8

This scale was considered very weak at α = .285 when considering its internal consistency. In regard to this, the researcher added another scale to measure the extent of memory.

Table 3.7: Reliability of the Rosenberg Self Esteem Scale

Cronbach's Alpha	N of Items
.773	10

Rosenberg Self-esteem Scale yielded a Cronbach's Alpha of α = 0.773, which closely compares to the scores obtained by its authors, at α = 0.72 to α = 0.87 (Rosenberg 1965).

The Cronbach's Alpha scale the adapted DES with α = .847. The original test by Bernstein and Putnam (1986) had an internal consistency of α = 0.90 therefore reliability is dependable.

Generally all the Likert scales in the questionnaire had high reliability hence were used for the study.

From the Pilot study, it was noted that one of the items in the Rosenberg self esteem test had a typing error, this was corrected. Grammatical mistakes were also corrected.

3.10 Data Collection Procedures

The participants individually responded to questionnaires that were administered to them. Interviews for the teachers were conducted by the researcher. Focus group discussion was done by the guided by the researcher and participants provided the information through the discussions. The interview for the teachers and focus group were transcribed word by word. The data was collected and coded for analysis.

3.11 Data Analysis and Presentation

The data analysis stage was divided into the following two stages: coding and scoring followed by the analysis of data. In the first stage, the data was entered into SPSS® version 21 software.

Coding for the Impact of memory of trauma Scale, was as follows: always = 4, sometimes = 3, rarely = 2, never = 1. The maximum score for impact of memory of trauma was 64 while minimum score was 16. The scores were categorized as mild, < 16 - 32 points; moderate 33 - 48 points and profound 49 - 64 points.

Scores for extent of memory of trauma ranged from a maximum score of 16 points and a minimum score of 4 on likert scale. The scores were categorized as follows: vague < 4, vivid 5 - 8, very vivid 9 - 12 and profoundly vivid 13 - 16.

The Trauma indicator Scale employed a five point likert scale whose codes range from strongly disagree =1, Disagree = 2, not sure = 3, Agree = 4, strongly agree = 5. The maximum score for the IES was 75 and the minimum score was 15. The scores were further categorized into the following categories: mild score was 15 -30, moderate 30 -35 and profound 36 - 75 points.

The DES scale had two points which were coded as True = 1 and False = 2, where 1 represented true or admission to symptoms of dissociation and 2 represented or absence of dissociation. The maximum score was 56 points; those scoring below 28 points had profound dissociation, 29 - 42 moderate dissociation and 43 and above, mild dissociation.

The coding for the RSES ranged from strongly disagree - one point (SD = 0), disagree - two points (DA = 1), Agree three points (2 = 3) strongly agree three points (SA =3). Reverse scoring was done for item 3, 5, 8, 9, and 10. The scores were categorized as Low SE esteem = below 15, average SE 15 - 25, above average 26 and above.

Coding for social competence scale was on a four point likert scale which had the following scores; always = 4, sometimes = 3, rarely = 2 and never = 1. The highest possible score was 40 points and the minimum score was 10. The scores were categorized as follows: 10 – 20 = weak social competence; (SC), 21 – 30 = average SC and 31 – 40 was above average SC.

The somatization subscale was scored based on three point likert scale, coded as follows: always = 4, sometimes = 3, rarely = 2, never = 1. The highest possible score was 40 points and the minimum was 10. The results were categorized as: 10 - 20 was mild somatization, 21 - 30 was moderate somatization, and 31 - 40 was profound somatization.

In the second stage, qualitative data from the focus group discussions was analyzed thematically in regard to the issues raised by the participants. The research questions formed the themes of the qualitative data. The objective on mitigation of effects of memory of trauma on psychobiosocial constructs entirely relied on the qualitative data. The participant’s experience guided the formulation of the model for mitigation of relationship between memory of trauma and psychobiosocial constructs.

The generated data was entered in to SPSS® version 21 software for processing. The scores and percentages of the variables were generated to explore the relationships. Pearson Correlations Coefficients (r) were carried out to establish the relationship between memory of trauma and the various psychobiosocial constructs. Significance of the findings was measured at $\alpha \leq 0.05$ alpha level. Descriptive and Correlation data analysis was done to find the relationships between dependent variable and the independent variables. The data was presented using correlation matrixes and tables.

3.12 Data Management and Ethical Considerations

To carry out the study, the researcher was given a letter of authority to carry out the research by Kenyatta University. The study was approved by the University research ethics board. An introductory letter to the National Council for Science, Technology and Innovation (NACOSTI) was provided. NACOSTI facilitated the researcher with a research permit and an identity card which were presented to the institution where data was collected. The researcher then requested for permission to carry out the study in the institution from the Principal.

On Ethical requirements, the researcher protected the identity of participants. The participants were informed of the purpose of the study and were asked to participate without coercion. The researcher clearly explained the purpose of the study and gave the participants freedom to fill Informed Consent Form (Appendix II). Participants were informed that they were free to terminate their participation any time, without any consequences.

Confidentiality was maintained throughout the study by protecting the identity of the participants through coding the questionnaires. While collecting qualitative data, audio tape recording was used so as to protect the participants. The researcher held debriefing sessions with the participants, to help them deal with effects of memory of trauma events such as feelings and painful emotions.

CHAPTER FOUR

PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter covers the presentation and interpretation of findings of the study. The purpose of the study was to explore the relationship between memory of trauma on self-esteem, somatization, social competence and dissociation. The study was done among adolescents with physical disability in an institution in Kiambu County and was guided by following research objectives;

1. To establish causes of memory of trauma among adolescent with physical disability.
2. To analyze triggers and extent of memory of trauma among adolescent with physical disability
3. To establish the impact of memory of trauma experienced by Adolescent with physical disability.
4. To find out levels of psychosocial constructs among adolescents with physical disability
5. To assess the relationship between memories of trauma with selected psychobiosocial constructs among adolescents with physical disability (Self-esteem, Social Competence, Dissociation, Somatization)
6. To propose strategies of mitigation of the effect of memory of trauma on selected psychobiosocial constructs among adolescent with physical disability.

The chapter begins with the presentation of the response rate and demographic data of the participants.

4.2 Demographic Information

The demographic data of the study participants included age and gender. Out of a hundred and thirty (130) adolescents with physical disability who were administered the questionnaires, one hundred and twenty nine (129) filled and returned them, realizing a response rate of 99.2%. The study also recruited another twenty (20) adolescents with physical disability into a focus group discussion. Besides these, there were two (2) teacher counselors who also provided additional data through interviews.

4.2.1 Age Distribution of Participants

The researcher sought to determine the age of the participants. The teachers were 50 yrs and 48 yrs old. The distribution of the age of participants who were students are presented in Table 4.1.

Table 4. 1 Participants' Age

Age	Frequency	Percent
10 – 13 years	3	2.3
14 – 18 years	91	70.5
19 – 22 years	32	24.8
23 and Above	2	1.6
Total	129	100.0

The results show that participants were aged between 12 to 23 years. There were only three (3) participants, aged between 10 and 13 years, who accounted for 2.3% of the participants (n = 129). The majority of participants were aged between 14 and 18 years, and accounted for 71% of study participants. Ages 19 to 22 years constituted 24.8% of the participants. The study established that some participants were over 18 years because some learners with physical disability start school late due to challenges that are associated to trauma and physical disability (Andolo, 2019; Wang'ang'a, 2013, Wamocho & Kioy, 2013; Ministry of Education, 2018), which lead to joining school later and therefore interfering with the ability of the adolescent with physical disability to interact freely with their classmates who may be younger.

4.2.2 Gender Distribution of Participants

The study sought to establish the gender distribution of the participants who were students and the results were presented in Table 4.2.

Table 4. 2 Distribution of Gender among Participants

Gender		Frequency	Percent (5%)
	Male	74	57.4
	Female	55	42.6
	Total	129	100.0

The results indicated that there were seventy four (74) male participants, who accounted for 57% of student participants, while female participants were fifty five (55) and accounted for 43% of the student participants. The gender distribution of participants varied for different reasons. Girls were fewer than boys. A UNICEF report showed that girls with physical disability were left at home taking care of their younger siblings while boys were taken to school (UNICEF, 2013). The disproportionate representation of girls, as noted by UNICEF traditional gender roles for girls contribute to reduced support for girls' education (Hari, 2017). More boys are sent to school than girls with the assumption that the boys are future bread winners (Muller, 2000). Other reasons for the fewer girls in the institution could include early marriage and early pregnancy (Agbor, 2017; Odhiambo, 2013).

Caregivers were considered in categories depending on who raised the adolescent with physical disability. The caregivers had a role to play in the adolescent with physical

disability's way of coping with trauma and their support right before and after trauma. Categories of the caregivers are presented in Table 4.3

Table 4.3 Categories of Caregivers of the Participants

Caregiver	Frequency	Percent
Mother	32	24.8
Father	6	4.7
Both parents	71	55.0
Children's home	2	1.6
Foster home	1	.8
Relatives	8	6.2
Both parents and relatives	1	.8
Foster home and mother	4	3.1
Mother and children's home	2	1.6
Mother and relatives	1	.8
Foster home and father	1	.8
Total	129	100.0

Most of the participants, (55%) had both parents as their primary caregivers while, 24.8% were raised by their mothers and only 4% were taken care of by their fathers. Fewer participants were cared for in foster homes, children's homes, relatives' homes. The different categories of caregivers may influence prevalence of memory of trauma since, raising adolescent with physical disability exerts a strain on caregivers therefore predisposing them to possible abuse. Adolescent with physical disability in residential care are more at risk to sexual and physical abuse (UNICEF, 2013; UNICEF, 2012). Caregivers play a great role in the children's development, safety, their positive relationships with the

children contribute to their cognitive and psychobiosocial development (Tele, Resegue & Puccini, 2016; Malizia, 2017). The presence of the caregivers helps Adolescents with physical disability to cope with the effects of memory of trauma.

4.3 Findings of the Study as per the Objectives

In this section findings are presented as per the objectives of the study.

4.3.1 Causes of Memory of Trauma among Adolescents with Physical Disability

Objective one: This objective sought to establish causes of trauma among adolescents with physical disability so as to confirm that participants actually experienced trauma. This was achieved through a list of events that the participants checked. A trauma indicator was administered to explore their reactions to the trauma event so as to establish whether they experienced trauma after the event. A trauma indicator scale developed from DSM V by the author was administered to the participants to find out whether trauma was registered after or before the event. The following section identifies and discusses the events.

4.3.1.1 Events that caused Memory of Trauma

Trauma events may cause memory of trauma among the participants (Adolescents with Physical disability). The events were categorized as events in the community, natural phenomena, mistreatment and physical abuse and sexual abuse. Table 4.4 shows the frequencies of trauma events in the community.

Table 4.4 Causes of Trauma in the Adolescents with Physical Disability's Community

Event		Count	Percent (%)
Experienced road accident	Yes	11	8.52%
	No	118	91.47%
Experienced removal of a body part other than limb	Yes	8	6.30%
	No	121	93.80%
Experienced removal of a limb	Yes	8	6.20%
	No	121	93.80%
Abandonment by relatives	Yes	17	13.17%
	No	112	86.80%
Affected by the post-election violence	Yes	12	9.30%
	No	117	90.7%

The trauma events that were experienced in the community are presented in Table 4.4, they included; abandonment which was reported by 13% participants. Abandonment was as a result of disability or divorce of the parents. The challenges that caregivers experience when raising children with disability, may cause them to neglect or reject the adolescent with physical disability, and therefore cause them trauma. Participants who experienced post-election violence were 9%, and from the focus group discussions, this event led to injuries and memories that caused a total change in the lives of the adolescent with physical disability. From the focus group discussions a participant reported:

> *"I got my disability during the post-election violence and I was confined on the wheelchair" (Male participant).*

Road accidents affected 8% of the participants. From the focus group discussions a participant reported that,

> *"We were travelling in 2007 the bus lost control and rolled over a steep slope stones rolled into the bus and that is when my arm was cut and I was not able to do many things for myself."(Female participant)*

The participant reported that her arm was amputated as a result of a road traffic accident. Loss of an arm led to inability to carry out Activities of Daily Living (ADL). Most adolescents with physical disability attend rehabilitation to enable them cope with the residual ability (Benz, Haiduk, Lehmann, et al., 2017; Huang, Liu, Murong, et al., 2019). Some participants described loss of ability to carry out ADLs and this caused them trauma and memory of trauma. Their self - image changed, social competences were affected by the amputation. Increased awareness of self as they grappled to adjust to life after the loss of ability, while depending on other people or assistive devices remain to be a constant reminder.

Amputation as a result of road accidents affected 6% of the participants. Road accidents in Kenya have affected 5456 people between June 2017 to 2018 June (NTSA Report- Kenya, 2018). From the focus group discussions, other accidents were due to wrongly placing of items within the environment. Amputation of body parts as a result of an accident or illness constantly reminded them of the distress they had and this may affect their self - esteem and social competence. Findings by Harder et al. (2012), reported that trauma events cause changes in the individual's lives so adjusting quality of life which is reflected in self-competence and self - esteem.

A participant reported the following in the focus group discussions:

> *"My father left us when we were young and my mother had died, my brothers went to the streets and my grandmother took me up. Well-wishers found my brothers." (Female 21 years)*

The participant's parents separated leading to onset of feelings of despair and insecurity. Separation and divorce causes trauma since it leaves children uncertain, wondering if they are the cause of the separation. The experience leads to loss and grief since the family dynamics suddenly changed with the absence of the father and death of her mother. Adolescents with physical disability who are suddenly left or abandoned experience trauma and it is reported that this can destroy their personality since trauma is a major factor for adolescent behavior problems (Ishmaili & Yacoob, 2011). The sudden spatial distance and emotional separation is a painful experience for an adolescent. Attachment relationships are very important (Malizia, 2017) so when separation occur as a result of death or sheer abandonement, it interferes with Adolescent with physical disability's sense of security and safety therefore weakening their relationships and friendships. A participant reported;

> *"After the divorce of my parents I was disturbed, I thought life had come to end. Then my sister died and they said that my dad killed my sister. I confronted my dad and he beat me up." (Male, 19 years old)*

The participant's parents divorced leading to onset of feelings of despair and insecurity. This participant experienced multiple trauma, which is loss of his sister and divorce of the parents. The statement is in tandem with a study that reported that divorce causes trauma since it leaves children uncertain, wondering if they are the cause of the divorce loss of attachment relationship (Myrck, Green, & Crenshaw, 2013). The participant's statement agrees with reports that children feel abandoned or rejected or shocked hence the

emotional trauma during divorce (Fegan, & Churchill, 2012; Odenweller, 2014). Adolescents from divorced families experience a negative relationship in their psychological constructs especially their self - esteem (Mustafa and Odediran, 2019). Divorce, emotional and legal processes are causes of memory of trauma on the adolescent with physical disability.

Loss and grief as a source of trauma (Ishmailli &Yacoob, 2011) may affect the person's behavior, leading to avoidance or even depression (Rosenberg, Lawrence, et al., 2012). This behavior is related to social competence. When one declines to face the emotions or memory of trauma, they fail to experience healing.

Participants who were affected by post - election violence (2007/2008) were 9.3% while Harder et al., (2012), reported 11-17% who experienced post-election violence and had post trauma stress disorder. From the focus group discussions, a participant stated;

> *"We lived in Kibera when the post - election violence erupted. I was in the house and there were people being chased by the police. While in the house I was hit by a bullet that affected my spine leaving me with spinal injury."(Male, 20 year old).*

The participant was later confined in a wheelchair after a bullet went through his spine during the post - election violence. The participant indicated that he was shot and acquired physical disability that inflicted spinal injury. The injury made him totally dependent on other people in carrying out activities of daily living. His life totally changed following the incident. A teacher counselor also reported another case;

> *"One student's life was threatened during the post-election violence, all their possessions were burnt and their family was displaced."*

The life of the participant was threatened psychologically and physically during Post Election Violence causing distress. Loss of mobility and dependence on assistive devices rendered the adolescent with physical disability totally dependent on other people and this evokes memory of the trauma. The other participant witnessed the terror of being rendered homeless while their property was burnt to ashes. The impact of trauma may lead to feelings of insecurity in the community and it may cause aggressive impulses thus negatively affecting their social competence. In addition the victims of trauma may develop fear and lack trust for others and continous sense of danger looming therefore always on alert for flight.

A participant who was affected by post - election violence described this event:

> *"I was in class eight during post elections, we were going to school, something happened to me and when my urine came out without breaks, then when I went to hospital the doctor said that I had a sexually transmitted disease and I have never had sex."*

This event occurred during the Post-Election Violence (PEV). When a girl is sexually defiled, her life changes, Mutavi (2018) reports it lowers their self esteem. The violation and violence dehumanizes the person (Zembyas, 2007), this is evident when PEV took place in 2007/2008 in Kenya (Mara, 2009; Krieglar 2008; Maupeu; 2008). As specified in the focus group discussions the participant could have been in denial because the doctor diagnosed a sexually transmitted disease and an infected bladder but she insisted that she had not been sexually abused. Other than denial, dissociation may have contributed to the memory being blocked. Dissociation is a reaction to devastating danger that has tormented the body and the brain (Green & Myrick, 2014). The participant's reaction is in tandem with a study that concluded that when girls are exposed to early sexual abuse, they present

dissociation symptoms and cognitive defects among other effects (Trickett, Noll, & Putnam, 2011). Dissociation enables the affected person not to experience the pain and emotion of the trauma. A study reported that children and adolescents affected by trauma internalize and externalize behavior and have motional dysregulation (Hebert, Langevin & Oussaid, 2018) and this influences social competence and self esteem. Trauma events from natural phenomena were reported in Table 4.5.

Table 4.5 Memory of Trauma Resulting from Natural Phenomena

Event		Count	Percent (%)
Experienced floods	Yes	9	6.9%
	No	120	93.10%
Experienced earthquake	Yes	7	5.40%
	No	122	94.50%
Experienced landslide	Yes	10	7.80%
	No	119	92.20%
Lost a loved one	Yes	57	44.20%
	No	72	55.80%
Sudden inability to perform ADLs	Yes	42	32.50%
	No	87	67.50%

It is noteworthy that few participants experienced trauma causing events as a result of natural phenomena in the categories presented in Table 4.5, meaning that the events were beyond human control, isolated due to its nature and geographical phenomenon. Natural phenomena events that were experienced by many participants included loss of loved ones (44%). When loss and grief is happening, life gets to a standstill, because people

experience trauma (Boss, 2010). Trauma from loss of loved ones causes distressful memories which form feelings and thoughts of the loved one lingering in the minds of the bereaved. Traumatic grief may cause adolescents with physical disability to live with guilt or blame themselves for the death of the loved one thinking that they would have rescued the person or helped them to survive (Monnarinno & Cohen, 2011). Adolescents with physical disability may need to be helped to comprehend loss so as to work through the memory of trauma from loss.

Non death loss associated with trauma such as losing a home, ability to carry out ADLs or a limb leads to similar grief emotions as those of loss due to death. Non death loss therefore has psychological effects as it influences the emotional wellbeing of a person (Monique, 2018). Some participants (32%) reported loss of ADLs. In the focus group discussions a participant reported the following:

> *"It was in 2009, I was in class six, my legs and hands got swollen, I had a lot of pain and I was not able to walk, write or move where I was. I was so afraid. I was taken to hospital. Later on while in class eight I was put on wheelchair, I stayed in the hospital for one month then I got better though I now walk with a limb."(Female 19 year old participant)*

Sudden illness that leads to loss of mobility is an example of non-death loss which may cause trauma and memory of trauma. Other statements regarding non death losses or trauma events experienced by the participants are as follows:

> *"I was born without disability, suddenly I started feeling weak and I was not able to walk again. So I was taken to a special school." (Female participant, 18 years old).*

> *"At four years, I fell sick and was taken to hospital, I was treated and after that I would walk on my knees and hands…" (Male participant, 18 years old).*

Loss of independence as captured in the quote is traumatizing. This would require adjustment because self-esteem and socialization constructs are affected (cordon, et al., 2004). Sudden inability to carry out activities of daily living (ADL) may be traumatic and cause extended grief which may complicate (Boss 2010; Shear, & Smith-Caroff, 2002) or cause mental illness (Malekoff, 2008). The inability to carry out activities of daily living (ADL) interfere with the Adolescent with physical disability quality of life, in the process this redefines their personality (Narimari &, Mousazaden, 2010). As the adolescent with physical disability developes cognitively, the trauma and its memory interferes with the formation of personality traits. Acute stress that follows trauma events occurs at the onset of the disabling event though it subsides as time goes by (Hamanaka et al., 2006). A participant gave the following statement:

> *"I was feeding through the pipes and was on oxygen, I wondered within my mind how life was going to be."*

The fear of whether one would survive threatened existence is an indicator of trauma (APA, 2013). Reported physical abuse as a trauma event was reported in Table 4.6 shows.

Table 4.6 Trauma from Physical and Psychological Abuse

Event		Count	Percent (%)
Been beaten unfairly	Yes	18	13.95%
	No	111	86.05%
Mistreated by parent	Yes	11	8.52%
	No	118	91.40%
Mistreated by siblings	Yes	10	7.80%
	No	119	92.24%
Mistreated by schoolmates	Yes	20	15.50%
	No	109	84.49%
Mistreated by teachers	Yes	12	9.30%
	No	117	90.69%
Mistreated by housemother	Yes	6	4.65
	No	123	95.34%

From Table 4.6, it is notable that most participants (15%) had been mistreated by schoolmates. This means that prevalence of bullying and abuse of both physical and emotional could be a source of trauma among the school going adolescent with physical disability. Participants who were beaten unfairly were 14%, while those who had been mistreated by parents were 8%.

A UNICEF survey reported that two thirds of participants in their survey experienced physical abuse prior to 18 years while seven out of ten were slapped, pushed punched, whipped and beaten with objects prior to eighteen years (UNICEF, 2012) . The high prevalence of violence and abuse reported by UNICEF among adolescents between the

ages 13-24 years in Kenya, is in tandem with the the findings of the current study. The memory of the trauma on the children may result to social incompetence and lower their self-esteem, and this may affect the adolescent with physical disability's interaction with their environment.

Participants who were mistreated by siblings were 7.8%. Most adolescents with physical disability spend a lot of time with their schoolmates and siblings. This gives room for care and also mistreatment depending on the nature of relationships they have. A report from one of the focus group discussions participants stated,

> *"One of the girls in the school hit me on the healing leg and it started bleeding", (Male 20, years old).*

School is a great environment for growth yet it can breed bullying and mistreatment of adolescents. When an adolescent with physical disability is in a school with learners who do not have disability, they are either exposed to excess sympathy or mistreatment. The adolescent with physical disability may in turn respond with self-defense as a reaction to the memory of mistreatment or abuse by others and this may lead to high risk behaviors (Pat-Horeczyk et al., 2007). In this study, the reaction results from memory of the mistreatment by the school mates or siblings.The Adolescent with physical disability seek to protect themselves from physical or psychological harm through the defense mechanism through the reactions, unfortunately they may be anti social or self destructive. The adolescent with physical disability may experience social segregation from other students and teachers (Lindsay, McPherson, 2012; Tolth &Cichetti, 2006) as reported from a study.

Teachers may be perpetrators of mistreatment as indicated in the findings (9.4%). An adolescent with physical disability who felt mistreated by a teacher reported this:

> *"When the teacher came she abused me and said 'wewe kiwete kwa nini unafanya watoto wapige kelele' (you cripple! why are you are making the students to make a lot of noise) she looked at my bleeding leg and walked away."(Male, 23 years old)*

It is expected that the teacher as a caregiver protects the participant who has experienced traumatic event. From the focus group discussions, the teacher increased a sense of insecurity and discrimination by labeling the adolescent with physical disability in front of the other learners and not providing first aid and this caused trauma. His expectation for protection was not met and the wound on his leg was not attended to even after being labelled a cripple. The teacher's attitude towards the adolescent with physical disability demonstrated discrimination and contributed to trauma of adolescent with physical disability which increased a sense of insecurity and alienation leading to social malfunction (Lindsay et al., 2012). Studies show that conflict between children and their parents is traumatic, damages the child's wellbeing and is exceedingly stressful for children and adolescents (Ishmail, et al., 2011). On the other hand, mistreatment may lead to distorted perceptions of self (Schmid, Petterman and Fergett, 2013), therefore increasing adolescent with physical disability's levels of exposure to trauma. Adolescents with physical disability are prone to be exposed to sexual abuse which may be a great source of trauma. Table 4.7 shows the findings on sexual abuse.

Table 4.7 Trauma from Sexual Abuse

Event		Count	Percent (%)
Touched indecently in private parts	Yes	16	12.40%
	No	113	87.50%
Forced to kiss	Yes	17	13.10%
	No	112	86.80%
Forced sex	Yes	16	12.40%
	No	113	87.50%
Forced to touch other person's private parts	Yes	15	11.62%
	No	114	88.4%
Exposed to verbal sexual pressure	Yes	17	13.10%
	No	112	86.80%

Participants who reported that they were touched indecently were 12.4%, forced to kiss were 13.2%, forced to have sex were 12.4%, forced to touch other person's private parts were 11.6% and exposed to verbal sexual pressure were 13.2%. Sexual abuse was prevalent among the participants with a cumulative percentage of 63%, the finding is similar to the findings of the comparative study done in Kenya and South Africa on prevalence of trauma experience (Sedaat et al., 2004). Similar findings were observed in a survey by National Center for PTSD (2015) which indicated that sexual abuse is a worldwide problem affecting, 65% adolescents. The quantitative findings were corroborated with qualitative data from the teachers as exemplified by the following quote. A teacher counselor reported the following:

> *"Among the trauma events that were reported, we have a student who was raped and another experienced attempted rape". (Teacher Counselor)*

Similarly from the focus group discussions one of the participants said this;

> *"Some of the people who give us sexual pressure are stronger than us and we cannot fight them off. I was abused by my father and I could not tell anyone because he is the one who assisted me in carrying out my activities of daily living and also provided for all my needs."*

The participant was sexually abused by the parent and this was the source of her trauma yet she could not disclose this act for legal action because she was a dependent. As captured from the quote, the primary care giver who is expected to provide security for the adolescent with physical disability, is the one responsible for the abuse. This contributes to development of insecure relationships due to memory of the abuse and this could affect her life. Scholars such as McLeod (2003) , Mustafa and Odedirian (2019) have shown that insecure relationships as a result of distrust from the care giver leads to poor social attachments negatively affecting the social competence of individuals. In line with the psychoanalytic theory that informed this study attachment is a key factor in individual's development. Psychoanalyst scholars such as Klein (2009) argued that the quality of relationship that the child experienced with primary caregiver is significant towards adulthood. Accordingly, fundamental insecurity and terror that could be evoked by such memories leads to rage and more significantly is characterized by paranoia which makes it hard for people to interact effectively. Whether this is the case with the Adolescent with physical disability was important for this study.

The trauma indicator was explored to understand the extent of the experience on the participant.

4.3.1.2 Reaction to trauma and levels of trauma

Further, findings from the trauma indicator were used to establish the reaction to the reported trauma. This is presented in table 4.8.

Table 4.8 Reaction to Trauma by Participants

Statement	Strongly disagree	Disagree	Partly agree	Agree	Strongly Agree
I felt like I could not help the situation	39.5%	17.19%	10.1%	19.4%	14%
I felt very sad	30.2%	13.2%	7.0%	28.7%	20.9%
I felt angry and frustrated	37.2%	13.2%	10.1%	20.9%	18.9%
I felt that I was not safe	47.3%	10.9%	10.9%	18.6%	12.4%
I should have been able to save the situation	51.9%	17.9%	10.9%	8.5%	10.9%
I thought I was in control of the happenings	55.8%	15.5%	10.1%	11.6%	7.0%
I was ashamed of my emotions and response	62%	10.1%	10.1%	8.5%	9.3%
I was worried of the safety of other people	52.3%	11.7%	10.9%	14.8%	10.2%
I thought of the other people	48.1%	12.4%	7.8%	17.8%	14.8%
I felt that I had lost control of my emotions	46.5%	14.0%	11.6%	16.3%	11.6%
I could not control my bowels and bladder	71.9%	4.7%	6.3%	8.6%	8.6%
I was very disturbed by what I saw	60.5%	9.3%	10.1%	9.3%	10.9%
I sweated shook and my heart pounded fast	47.3%	10.1%	10.9%	15.5%	16.3%
I might have passed out	50.4%	14.0%	12.4%	10.9%	12.4%
I thought I might die	63.6%	10.9%	8.5%	8.5%	8.5%

As captured in the Table 4.8, participants remembered different reactions to traumatic events. The findings showed the following; 33% of the participants reported helplessness most of the time; that 50% of the participants felt very sad; that 40% of the participants felt angry and frustrated; 31% of the participants reported feelings of insecurity. Another 31% of the participants blamed themselves for occurrence of the trauma event and for not saving the situation. A small percentage (25%) of the participants thought that they were in control of the happenings. Seventeen percent (17.8%) of the participants indicated that they

were ashamed of their emotional response to the trauma event. Twenty five percent (25 %) of the participants were worried for other people during the trauma event. Seventeen percent (17.2%), of the participants reported that they were able to control their bowels during the trauma event. Twenty percent (20.2%) of the participants reported having been disturbed by what they saw during the trauma event. Lastly, only 23% of the participants reported that they passed out during a trauma event.

The statements are indicators psychological reaction to trauma. Studies affirm that experience of trauma event leads to psychological discomfort (Mclaughin, Colich, Rodman, et al., 2020), acute stress and distress which manifests physiologically (D'Andrea, Sharma, Zelechoski & Spinnazola, 2011) as, loss of bladder control, passing out, the heart pounding fast. The results of this study resonate with studies that reported high prevalence of trauma among adolescents (Arigga, et al., 2008; Galea, Nandi & Vlavo, 2005; Ndetei, 2007; Larson et, al, 2013) leading to prevalence of memory of trauma among adolescents. Adolescents who experience trauma by the age 16 years present with problems in school, emotional difficulties and physical ailments (Anderson, 2015). Psychological indicators of trauma such as helplessness, frustration, insecurity, worrying about others, and loss of control of emotions as reported in the current study are in agreement with reports by Kriskcher & Sevecke, (2008) and Bloom, (2013). However, it should be noted that trauma impacts on people differently. The scores for the participants were summed to establish levels of trauma. The results are shown in the Table 4.9.

Table 4.9 Levels of Trauma among Participants

Level of Trauma	Frequency	Percent
Mild Trauma	51	39.5
Moderate Trauma	65	50.3
Profound Trauma	13	10.1
Total	129	100.0

The results showed that fifty percent (50%) of participants had moderate trauma, thirty-nine (39%) percent mild trauma and only ten percent (10%) reported profound trauma. The mean score was 18.866 while standard deviation was 12.6279, this meant that majority of the participants lay within the moderate levels of trauma. Memory of trauma depends on the intensity of the impact of the trauma. Results of this study resonate with studies on prevalence of trauma among adolescents that concluded that trauma is prevalent among adolescents (Arigga, et al., 2008; Galea, Nandi & Vlavo, 2005; Ndetei, 2007) and it contributes to memory of trauma. Memory of trauma may affect the individual's psychobiosocial constructs. Dunn (2015) for example, cites psychological problems such as anxiety, depression, moral injury and PTSD as some outcomes of traumatic events.

Majority of the participants experienced moderate trauma confirming its prevalence among adolescents. Some of the participants reported more than one type of trauma event and this is in agreement with the report by Larson (Larson et al., 2013) who emphasized trauma was prevalent among the adolescents and this causes memories of the event.

Having established that participants experienced trauma at different levels, the study explored the triggers of the memory and extend of the memory of trauma.

4.3.2 Triggers of Memory of Trauma

The second objective analyzed triggers of memory of trauma. Under this objective, the extent of memory of trauma as reported by participants. A list of possible triggers of memory of trauma events was given to the participants to identify. The triggers were considered as either external loci or internal loci. The results for external loci triggers of memory of trauma were presented in Table 4.10.

Table 4.10 External Loci Triggers of Memory of Trauma

Memory Triggers	Column %
Information from Parents	37.2%
Reading from a diary or journal	19.1%
Reports to the authorities after the incidence	5.3%
My hospital documents	16.0%
From Parents and read from a diary or journal	6.4%
Read from a diary or journal & reports from authorities after the incidence	2.1%
Parents, read from a diary or journal & reported to the authorities after the incidence	1.1%
Parents and My hospital documents	6.4%
Parents, hospital documents report and read from a diary or journal	1.1%
My hospital documents report and read from a diary or journal	3.2%

External loci triggers of memory constituted records from hospital, diary or reports to the administration and verbal information regarding the source of memory of trauma causing event. As presented in Table 4.10, 37% of the participants reported that the memory was triggered from the parents' narration, 19% from the diaries, and 16% from the hospital records. Memory of trauma triggered by parent's reports had the highest percentage of participants. This could be because parents form the foundation of a child's memory in life (Ames, Glenton, & Lewin, 2017), thought patterns and exposure are shaped by a safe environment for self - regulation (Ardvidson et al., 2011).

The study found that reading a diary or a journal was the second most common trigger for memory of trauma. This finding was similar to a study that reported that stored information passed from one person to another through written media is one of the triggers for memory of trauma (Ardvidson, 2011).

The other trigger was participants' hospital documents or report. Reports from the focus group discussions indicate that most participants spent time in hospital for treatment and corrective surgery, as they read the documents, the memory of the trauma experienced in the hospital was rekindled. The documents triggered memory of the pain that was experienced or source of the pain. A teacher counselor reported:

> *"The student's memory is triggered by the material they read in class that relate to disability, or some topics of free discussion raised in class" (Teacher counselor)*

Material read in class such as passages that relate to the trauma has a way to trigger memory. This findings are in line with a longitudinal study which reported that trauma words were better recalled than neutral words among children who experienced trauma

(McNally, Rittucia, & Perlman, 2005). From Focus group discussions, the following statement was made;

> *"When being bought shoes, I am restricted to flat shoes only and this makes me to remember the trauma experience"*
>
> *"When I want to buy a certain clothe then I am told why I should not buy it and they describe how I am and how I look in the outfit."*

The participants reported that fashion triggered their memory of trauma. Fashion affected the Adolescent with physical disability because as adolescents, they think a lot of how others perceive them. Fashion affects their self-esteem negatively especially if they perceive their self-image negatively. Clothing serves as an emotional trigger because worn clothes represent the wearers' life, shapes tactile memory, and stimulates sensory and emotional memory (Schmidt, 2016). Accordingly clothing improves self image, the fact that adolescent with physical disability are reminded of the traumatic events when shopping for their dressing means that their self concept is negative and it affects their self esteem. From a humanistic perspective self concept is an important aspect in self actualization. Mustafa& Ismail (2015) observes that when people accept to be conditional they withdraw from interacting with judgemental people. Therefore when Adolescents with physical disability are not comfortable they withdraw from the agemates whom they perceive to be smarter than them and this affects their self esteem as well as social competence.

Participants in the current study made meaning of the information in documents, feelings, emotions and for some, images of the event were relived. From the focus group discussions one of the participants reported:

> *"As I read through the hospital report I was able to remember my stay in hospital, the doctors treating me and the pain I was experiencing. I remember the pain was so much."*

As the participant read the documentation in the hospital reports, the memory of the event became clearer. He even remembered the extent of pain experienced. This shows that the documents that the participants read facilitated the participants to recollect their trauma memories, emotions and pain. The triggered memory of the event enabled participants to process thoughts and feelings of the trauma experience. This was important since failure to process the traumatic events' emotions is fundamental to development of low self - esteem and relationship problems (Mutavi, 2017). Lack of confidence is due to the influence of poor social competence. From the Focus group discussions participants stated several incidences that triggered recall of trauma. Autobiographical memory,which is memory of life events was triggered as mentioned in the following statements from the focus group discussions:

> *"When I look at my photographs and see how I used to be, thoughts of the experience come to mind"*
>
> *"I got disabled while in church, I felt some pain in the hip and later could not walk. When I go to church I remember the event…. I went through many operations. I stopped going to church for two years."*

"When I see the person I was named after I remember how I experienced the trauma experience. I was told that I got disability after my grandmother who I was named after was not happy with my parents so she made me become disabled."

In the above statements, sight and venue of trauma event were triggers of the memory of trauma. The five senses are crucial in triggering memory. The sight of the place, or people who experienced or witnessed or perpetrators of the trauma events or photographs of the past, invoked thoughts and or feelings that caused memory of the trauma event, this report is in tandem with reports of earlier studies (Zurich, 2008; Hertz, 2016). From the focus group discussions above it is evident that adolescents with physical disability experienced both external and internal triggers of memory of trauma. Studies have shown that the effects of external loci vary from those experienced internally. Therefore it was important to test and analyze the experiences differently. The internal loci of memory triggers in this study referred to the inward acknowledgement of implicit memory. The statements in Table 4.11 were used to measure the internal triggers of memory of trauma.

Table 4.11 Internal Loci Triggers of Memory of Trauma

Statement	Always	Sometimes	Rarely	Never
I recall the bad experience as if it happened now	12.4%	27.1%	17.8%	41.9%
Painful experiences awaken my memory of trauma	20.2%	32.6%	18.6%	26.4%
remember the details of what happened to me in sequence	38.3%	24.2%	18.8%	18.0%
I remember the past in bits	16.4%	40.0%	18.8%	23.4%
I forgot all the bad past experiences	15.5%	26.4%	19.4%	38.8%
I day dream as I remember the painful experiences	12.4%	15.5%	16.3%	55.8%

Table 4.11 shows the percentages of participant's responses to internal loci triggers of memory of trauma. Twenty percent of the participants remembered the whole experience, 38% could remember the sequence of the event, 20% report that their memories are awakened by painful experiences, 16% remember the event in bits, 15%, forgot all the past, 12% day dream when they remember the painful experiences. This finding is in congruence with studies that reported that trauma can be recalled in bits or as a whole depending on the intensity (Center for Substance Abuse Treatment,US, 2014). This shows that the unconscious memory of the event is active in their minds (Caffo, Foressi, & Lievers, 2005). The adolescent with physical disability expressed their memory in terms of how much they were able to recall, hence the intensity of the memory. The items were scored and categorized into various levels of memory, Table 4.12 indicates the levels of Internal Loci Memory Triggers (ILMT).

Table 4.12 Levels of Internal Loci Memory Triggers

Category of the memory	Frequency	Percent
Vague	13	10.0
Vivid	63	48.5
Very vivid	51	39.2
Profoundly vivid	2	1.5
Total	129	100.0

The extent of internal loci memory of trauma was categorized as vague memory, vivid memory, very vivid and profoundly vivid memory. The participants who had vague memory of trauma (10%), vivid memory of trauma (49%), very vivid memory of trauma (39%) and profound vivid memory of trauma (2%). This results show that majority of the participants' experienced clear memory (vivid, very vivid and profoundly vivid) while a small percentage (2%) experienced very intense memory. The results are consistent with studies that reported vivid and exhaustive memories of trauma (VanWesel, Boeije, Alistic, & Drost, 2011) among participants. Memories of trauma are highly consistent over time as compared to other memories (Porter & Peace, 2007). Vivid memory of trauma is an indicator of stress that has not been dealt with. Memory of trauma is often more vivid than regular memory because of the feelings that are relived (Law, 2008). The rate of forgetting trauma events is slower compared to the other memories.

Emotional arousal triggers determine how you remember an event (Phelp & Sharot, 2008). This therefore shows that adolescent with physical disability especially those with vivid

and very vivid memory may need to work through emotions that are reactivated by memory of trauma for healthy psychological wellbeing. A participant in the focus group discussions reported this statement;

> *"When people do not understand me with my needs, I feel sad and remember the painful event."*

Feelings that they are not understood triggered memories of trauma possibly due to the frustration and sadness. These emotions if repressed may affect the participant's wellness through somatic symptoms. Emotions may also cause acute stress as a result of memory of trauma and if it complicates it may lead to dissociation. Vague memory among participants indicates that they are not able to completely recall their memory since it is inhibited or repressed. The statement is in tandem with reports that emotions evoked by internal loci triggers may complicate therefore causing behavioral and physical responses (Tying et. al, 2017) such as withdrawal, fearfulness and phobias.

A further exploration was done to find out the extent of memory of trauma. This was to ascertain how much of the trauma was recalled by participants. Table 4.13 shows the outcome.

Table 4.13 Extent of Memory of Trauma among Participants

Extent of Memory	Frequency	Percent
I remember the whole incidence as it happened	30	23.1
I remember the incident in parts	22	16.9
I remembered the incidence later	12	9.2
I remember some of the events and forgot others	16	12.3
I remembered everything as it happened much later	12	9.2
I know I went through the incidence but cannot remember its details	36	27.7
I remembered the incidence later and I remembered everything as it happened much later	1	.8
Total	129	99.2

Participants who remembered the whole incidence were the most (23.3%), those who remembered the incidents in part were 17.1% and those who remembered some of the events and forgot others were 12.4%. The results indicated that extent of memory of trauma varied and this is in tandem with a study that reported that negative emotions are managed by the brain through causing cognitive deficits which decrease the production of specific memories (Moore, & Zoellner, 2007). Psychoanalytic theories explain that, the parts of the event that were not remembered are either repressed or suppressed. The evidence of vivid memories is in tandem with a study which concluded that memory for earlier traumatic events contain intense and highly vivid components that are reactivated

later in life (Hiskey, Luckie, & Brewin, 2008) therefore contributing to the extent of the memory.

The next section will discuss the third objective on the impact of memory of trauma among adolescent with physical disability.

4.3.3 Impact of Memory of Trauma on Participant's Psychobiosocial well being

Having established in Objective one the events that caused memory of trauma, the third objective sought to establish the impact of memory of trauma on adolescent with physical disability. The results were presented on Table 4.14.

Table 4.14 Response to Impact of Memory of trauma

Statement	Always	Sometimes	Rarely	Never
I feel afraid when am left alone	17.8%	41.1%	14.7%	25.4%
I am uncomfortable when with strangers of opposite sex	8.6%	29.7%	21.1%	39.8%
I have dreams that remind me of the bad experience	40.3%	25.6%	7.8%	25.6%
I remember the bad experience as if it is happening now	12.4%	27.1%	17.8%	41.9%
I daydream as I remember the painful experience	12.4%	15.5%	16.3%	55.8%
I have night mares	1.6%	16.3%	24.0%	57.4%
I usually have disturbed nights	1.6%	23.3%	17.8%	57.4%
I think about my past bad experiences	12.4%	35.7%	18.6%	33.3%
I can remember the painful experiences	20.2%	32.6%	18.6%	26.4%
I do not care about what happens to me even if it hurts	13.2%	28.7%	14.7%	43.4%
I forgot all the bad experiences of my childhood	15.5%	26.4%	19.4%	38.8%
I remember all the details of what happened	38.3%	24.8%	18.8%	18.0%
I hate thinking about my future	4.7%	13.2%	10.1%	72.1%
I think life has no meaning	2.3%	18.6%	6.2%	72.9%
I can work towards a hopeful future	76.7%	6.2%	5.4%	7.8%
I remember my painful past in bits	16.4%	40.6%	18.8%	23.4%

Participants reported fear when left alone (58.9%), discomfort when with strangers of opposite sex (38.3%), dreams that trigger memory of the event (65.9%), reliving the event (39.5%), daydreaming (39.5%), night mares (48.1%), disturbed night (24.9%), think about bad experiences (48.1%), remember painful experiences (52.8%), ceased to care much about life (41.9%), forgot all the bad experiences (41.9%), remember the details (63.1%), blocking the thought of the future (17.9%), giving upon life (20.9%), Working on the future (82.9%), remembering the past in bits (57%). These symptoms are psychological effects of the memory of trauma. Numbing, reliving the experiences, daydreaming, blocking the thoughts are all symptoms related to dissociation (Diseth, 2009), which is a psychoanalytic way of unconsciously protecting self from the pain of trauma. These are likely to influence the self-esteem and social competence of the adolescent with physical disability.

From Table 4.14, participants reported thinking about the incidence after it happened. Rumination which involves repetitive thinking of the trauma may be an expression of moderate impact of trauma (Mohobey-Ahari, 2014). Rumination of the memories evokes a lot of painful emotions, based on the event of trauma. The evoked emotions and this may affect the individual's affect, interaction, communication and self-esteem. The findings report of sadness, despair, disturbed sleep and others factors that influence quality of life. The scores from the Likert scale were summarized to establish the magnitude of the impact of memory of trauma on the participants. Table 4.15 indicates the summarized results.

Table 4.15 Magnitude of the Impact of Memory of trauma on the Participants

Levels of impact of trauma	Frequency	Percent
Mild	63	48.8
Moderate	66	51.2
Severe	0	0
Total	129	100.0

From Table 4.15 the results indicate: mild impact (49%) therefore they were slightly affected, moderate impact (52%) indicating that they were certainly affected and profound impact (0%). It is notable that some of the participants reported on table 4.9 profound levels of trauma yet findings of the impact of trauma are not severe, implying that the levels of trauma may not influence the impact of memory of trauma, therefore other factors come into play. These findings agree, with a study that reported, some adolescents are affected by trauma experiences while others are not (Nasongo, & Muola, 2011,Cohen, & Mannarino, 2008), meaning that levels of impact vary from person to person. Moderate impact of memory of trauma implies that Adolescent with physical disability life is affected by memory of trauma. If not well managed, the memories may lead to substance use, suicidality, delinquency (Ford, 2013) and other self harm behaviors. The impact of trauma in early stages of life is reported as a risk factor to antisocial behavior and inability to regulate anger (Krisler, & Sevecke, 2008; Ford, 2013). The impact of memory of trauma may affect the way the Adolescent with physical disability carry out their life following the event or memory of the event.

One of the teacher counselor responded to the impact of memory of trauma by explaining:

"The students have experienced trauma and its impact of memory included acting out, failure to concentrate in class and health related symptoms that were not specific to any disease that at times occur before certain events such as exams."

As captured in the quote, the effect of trauma may have negative effects on social life as well as academic performance. Acting out could result to antisocial behavior that exposes adolescents to conflict with other people. Similarly lack of concentration in class could lead to academic failure. All this would lower the self-esteem of the adolescent or affect social interactions. The finding on impact of memory of trauma is in agreement with results of studies that reported that the extent of the impact of trauma may lead to presentation of antisocial behavior, dysregulation of emotions (Nasongo, & Muola, 2011), lack of attachment, and social problems. The profound impact of memory of trauma can cause reaction symptoms such as fear, terror or painful remembrance of the trauma causing events (Lafta, Aziz, & ALObaidi, 2014; Ehlers, 2010) which may accelerate to post traumatic stress disorder which is a complication of post trauma development.

The fourth objective explored the levels of psychobiosocial constructs.

4.3.4 Levels of Psychobiosocial Constructs among the Participants

The fourth objective was so as to establish the participants' psychobiosocial levels. The findings are presented in this section.

4.3.4.1 Level of Social Competence

Participants responded to social competence scale to assess the levels social competence.

Table 4.16 shows the findings of participants.

Table 4.16 Response to Social Competence Scale

Item	Never	Rarely	Sometimes	Always
I show respect to the people I interact with	0.8%	4.7%	25.6%	69.0%
I bully others around me	20.9%	10.9%	13.2%	55%
I resolve conflicts when I experience them	10.1%	13.2%	34.9%	41.9%
I disobey others	14%	22.5%	21.7%	41.9%
I argue too much	15.5%	27.9%	34.9%	21.7%
I get along with most people I interact with	11.6%	13.2%	34.1%	41.1%
People say I am stubborn	19.4%	28.7%	14.0%	38.0%
I am generally very shy	21.7%	21.7%	24.8%	31.8%
I try to understand other people's feelings	7.0%	10.1%	31.8%	51.2%
I like visiting new places and being with new people	5.4%	13.2%	16.3%	65.1%

Findings indicate that 69% of the participants reported to interact with others respectfully, 42% try to resolve conflicts, get along with other people 41%, and understand other peoples' feelings 51% and 65% like visiting new places. Majority of the participants positively responded to the above statements. The negative statements such as bullying 55%, stubbornness 38%, argumentative 21% were highly scored though not as the positive statements. This indicates that most of the participants displayed social skills. The findings were summed up and categorized into three categories; below average Social Competence, average Social Competence, and above average Social Competence. Table 4.17 shows the outcome.

Table 4.17 Levels of Social Competence

Category	Frequency	Percent
Below average SC	8	6.2
Average SC	96	74.4
Above average SC	25	19.4
Total	129	100.0

Most participants scored average social competence (74%) while only 19% had above average social competence and 6% below average social competence. The mean of the scores was 20.55 while the standard deviation 4.925 indicating less variation in the scores. Participants with average and above average social competence would easily fit in the society because of ability to adjust, interact and agree with the average person within their environments. This finding is contrary to the findings of a study that reported that persons with impairments experience limitation in social participation (Jalayondeja, et al., 2013). The finding of this study is also contrary to a study that reported that people who have experienced trauma have difficulty interacting with others in a healthy manner (Harper, 2014). The difference in findings could be based on the fact that the participants were in an institution that helped develop social skills. Counseling sessions, could have contributed to positive social interactions. Participants reported trauma and memory of trauma and its impact yet most of them presented average social competence, contrary to a study that reported that adolescents with physical disability had weaker social skills manifested as anti social behavior that made them to be rejected by their agemates (Rubin, Bukowski, &

Bowker, 2015). Probably the strong social support found in schools facilitated by the peers, teachers and friendly environment formed a salient informal psychobiosocial support in shaping the Social Competence of the participants. This therefore indicates that trauma and its memory may not be the only factor that influences social competence. Other isssues such as school, resilience, frequency of trauma events, personality and ability to cope contribute the varying social competence.

From the focus group discussions some participants reported the following when they recall trauma events;

> *"Sometime you lack self - control, you feel much angry, and you are aggressive and want to fight" (Male participant)*

This was corroborated by a teacher counselor who made this statement during an interview on students who have experienced trauma:

> *'Some of the students who have experienced trauma become withdrawn, are aggressive, have unhealthy relationships, bullies and often times seek attention'. (Teacher counselor).*

The teacher counselor's statement indicated behavior that interferes with social competence. This statement agrees with the findings of a study that concluded that some persons who have experienced trauma express aggression and dysregulation (Robin, Bukowki, & Bowker, 2015) this characteristics contribute to the below average social competence. From focus group discussions, participants reported statements that expressed the feelings that were related with memory of trauma such as:

> *"When I recall the trauma, at times I feel guilty"*

"People stare at me and then I become intimidated"

"Others sympathize too much until interacting becomes a problem"

Guilt, unusually high sense of awareness of people's stares and sympathy are feelings that are evoked by memories of trauma. The report of the feelings is in tandem with a study that reported that a trauma victim may think that they could have done things differently (Stoltz et al., 2015; O'connor, et al, 2000) hence the guilt. Guilt can promote social cohesion and altruistic behavior preventing antisocial competiton after a trauma event. Some participants reported that they had feelings of intimidation that complicated interaction with others, this is in tandem with report that indicated that emotional risks may cause individuals to fail to understand others and themselves (Winer, & Thompson, 2017). These feelings are reported as aftermath expressions of post trauma events (Eckes et al., 2010). The feelings may cause some adolescent with physical disability to remember the trauma they experienced and eventually withdraw from social settings therefore increased loneliness (Breauchamp et al., 2009). When asked about their social behavior after the trauma event, participants stated:

"When a girl comes close to me, I am wondering what do they want, that is because I am not sure of what they want."

"I stay alone most of the time"

"I have mood swings…at times I refuse to eat"

"At times facial expressions affect how I respond to people"

The reports of suspicion and insecurity when near the opposite sex, may be related to inadequate social skills and inability to resolve conflict therefore influencing the levels of

social competence. The inability of the participant to interact freely is as a result of weak social skills hence social competence is affected. Withdrawal may relate to shyness (38%) while mood swings would affect interaction hence the 17% who rarely interact with other people. All these signs are indicators of a traumatized person (Steele, 2007; Blumberg, 2008). A traumatized person is not able to interact adequately and the signs interfere with social skills. The findings of this study therefore confirm the effect of trauma memories that could be debilitating to the adolescent with physical disability in one way or another. The adolescent with physical disability makes the other person an object of their insecurity therefore affecting their social competence, for example memories of trauma influence individuals to develop mistrust towards people. Existing literature shows a relationship between trauma and other stressors with the brain and developmental delay (Buss, Warren , Horton , 2015), suggesting that some of the affected adolescent with physical disability could have experienced delayed social development .

Social competence is influenced by adolescent with physical disability reports of mistreatment especially from significant others who were supposed to protect them (siblings and house parents) but failed to provide a safe environment for them. Mistreatment leads to significant impairment in social and emotional functioning such as poor communication skills, problems in intimacy and lack of trust (Goff, Reisbig et al., 2006) as reported by some participants therefore influencing their social competence. Findings are in agreement with the research that indicates that children who were exposed to trauma avoid conversations, people, objects, places or situations that remind them of trauma (Buss, et al., 2015). The triggered memory of trauma influences responses in social

settings negatively (Patheco, Irigaray, et al., 2014), in a manner that affects social competence. Trauma and its memory sculpture the adolescent's response to their social environment.

Average social competence and above average social competence posted a high percentage of participants. They reported triggers of memory from parents, reading from diary and from hospital documents which in this study were external loci triggers of memory. The participants who had their parents' report as an external loci trigger of memory, seemed to have coped well with above average social competence since they gained support from the parents to cope with the effects of trauma. This is in tandem with a study that confirms that parental skills contribute to socialization and help interpret memories of trauma (Cordon et al., 2004). Another study reported that parents who have perceived the trauma positively and coped well, helped the children to develop positive social competence (Kyung, Choi, Shin, 2011). This means that parent's emotional wellbeing enables the adolescent with physical disability to deal better with memory of trauma.

4.3.4.2 Participants' Levels of Somatization

Levels of somatisation were measured using a list of symptoms that indicate somatisation. Findings of the response to a list symptoms was provided in Table 4.18.

Table 4.18 Response to Somatization Scale

I experience the following symptoms	Never	Rarely	Sometimes	Always
Head ache	30.2%	18.6%	49.6%	1.6%
High blood pressure	80.5%	4.7%	13.3%	1.6%
Ulcers	82.9%	7.0%	7.0%	3.1%
Stomach pains	51.2%	16.3%	27.9%	4.7%
Chest pains	55.0%	15.5%	26.4%	3.1%
Back pains	65.9%	9.3%	23.3%	1.6%
Fainting	77.5%	5.4%	16.3%	.8%
Have you ever been unconscious	81.4%	5.4%	12.4%	.8%
Have you ever been blind in one or both eye	86.8%	6.2%	5.4%	1.6%
Any other Unexplained illness	86.7%	3.1%	7.8%	2.3%

It is noteworthy that majority of the participants experienced some of the following symptoms occassionally; head ache (50%), stomach pains 28%, chest pains 26% and backpains 23%. Only 1% experienced high blood pressure, had ulcers 7%. Participants who reported fainting were 16.3%, Blindness 7%, Unexplained illness, 8% sometimes with 2% experiencing it always. From the data few of the participants always experienced symptoms of somatisation but, most sometimes experienced the symptoms. Findings of levels of somatisation were categorised as mild, moderate and severe somatisation. Table 4.19 shows the outcome.

Table 4.19 Levels of Somatization

Category	Frequency	Percent
Mild Somatization	117	90.7
Moderate Somatization	12	9.3
Severe	0	0
Total	129	100.0

From the table, majority of the participants experienced mild somatization (90.7%) while a small percentage experienced moderate somatization (9.3%). The mean score was 10.9 while the deviation was .291. This means that there was little variance in the findings because most participants had mild somatisation.

One of the teacher counselors reported the following during the interview;

> *'Some students present health symptoms that are never ending such as head aches, stomach pains and hysteria'. (Teacher counselor).*

This results are in congruence with a report from a study that reported that, 25% to 50% of primary medical care visits indicate no physiological cause (Hartman, 2009). In the current study very few of the participants experienced moderate somatisation (9%) indicating that they would need clinical attention. The symptoms in the finding indicate that the psychosomatic symptoms occur and they affect adolescents with physical disability. This means that the memory of trauma may influence physiological symptoms that are presented by affected individuals. Participants in the focus group discussions were

able to explain some of the somatic symptoms that they exprerienced. The following are their statements;

> *"I have suffered pain for very many years and doctors do not find anything wrong…I realised it was not illness, I kept feeling am not myself…I feel bad especially when I fail my exams."*
>
> *"…I even used to nose bleed and the doctor told me that I have high blood pressure because of stress..".*
>
> *"…I came to school and fell sick for three weeks,the doctor told me I have ulcers.."*
>
> *"…I fell sick but the doctor did not tell me what I was suffering from.."*
>
> *"..sometimes I feel I have fingers on the amputated side.."*
>
> *"…I was shocked to learn that the father who I had was not my biological father.This affected me so much, I started feeling unexplained pains and asthmatic attacks…sometimes I feel bloated, do not want to eat,this is when I think much…"*

The particpants in the above statements explained that their symptoms occur at the onset or during a stressful period. The particpants from the focus group discussions reported symptoms such as; undefined pain, nosebleeding, high blood pressure, ulcers, asthmatic attacks and feeling the presence of fingers or toes on already amputated limbs. The afore mentioned symptoms may be related to stressors as a result of memories of trauma events (Uttl et al., 2006), that have not been dealt with.

The findings that participants experienced symptoms of somatisation were in agreement with a study that reported high stress led to asthma episodes (Samaha 2015). High stress levels impacted on the participant's physiological well being causing physical symptoms

of illness. The participant's report of physiological symptoms presented Table 4.20 and the categorization of levels of somatisation is in tandem with studies that reported that Adolescents with physical disability may suffer illness due to stress caused by their trauma experiences (Pizzi, 2008; Hamanaka et al., 2006). Memory of trauma is internalised leading to manifestation of physical symptoms (Mark, Martin, Womack, & Marsigan, 2003). Physical symptoms are bodily memory expressions of the acute stress experienced during the trauma event and the effect of suppressed memories of the event. A small percentage of participants with moderate somatization could be experiencing chronic exposure to memories of trauma.

The presence of somatic symptoms is in agreement with studies that reported that internalising of painful trauma memories and feelings, lead to deterioration of mental health (Kim & Chicheti, 2004). A study confirmed that somatisation is common among patients in the hospital (Hartman, et al., 2009). Inadequate support for adolescents with physical disability following trauma may cause internalising of emotions (Smith et al., 2003) hence somatisation. Adolescent with physical disability's parent is instrumental for the adolescent in managing the aftermath of trauma (Vanwesel, et al., 2011), because they would contribute in reducing the effect of psychosomatic symptoms.

4.3.4.3 Participants Levels of Self-Esteem

Levels of self- esteem was measured using the Rosenberg's Self- esteem Scale (Rosenberg, 1965), the results were presented in Table 4.20.

Table 4.20 Response to Self Esteem Scale

Item	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel I am a person of worth, at least on an equal plane with others	3.9%	11.6%	34.9%	49.6%
I feel I have a number of good qualities	.8%	4.7%	40.3%	54.3%
All in all I am inclined to feel that I am a failure	8.5%	10.9%	31.8%	48.8%
I am able to do things well as most other people	1.6%	10.1%	34.1%	54.3%
I feel I do not have much to be proud of	14.7%	25.6%	31.0%	28.7%
I take positive attitude towards my self	5.4%	9.3%	31.0%	54.3%
On the whole I am satisfied with my self	7.8%	13.3%	34.4%	44.5%
I wish I could have more respect for my self	48.8%	32.6%	7.8%	10.9%
I certainly feel useless at times	10.1%	20.9%	31.8%	37.2%
At times I think I am no good at all	10.9%	20.9%	25.6%	42.6%

Frequencies of the participants' response on the items were as follows: positive feelings such as: Feelings of self - worth (84.5%), having good qualities (94.6%), having positive attitude (85.3%), feeling satisfied with self (78.9%) and 'am able to do things well as other people' (88.4%). From the findings, it is evident that the positive feelings had a higher percentage among the participants as compared to the negative feelings. Generally most participants had positive thoughts and valued themselves.

The study found that negative feelings such as feeling as 'I do not have something to be proud of' (18.7 %,) 'wish could have respect for self (18.7%) had lower percentages while

feelings of being a failure (80.6%), useless (69.0%) or not of any good (68.2%) were high. More high scores were distributed among participants who valued themselves. Levels of self-esteem were computed and categorized as low self- esteem, average self- esteem and high self- esteem. Table 4.21 shows the findings.

Table 4.21 Levels of Self Esteem

Category of Self- esteem	Frequency	Percent
Low Self- esteem	12	9.3
Average Self- esteem	99	76.7
High Self- esteem	18	14.
Total	129	100.0

Sum of scores from the Rosenberg Self- esteem Scale (RSES, Rosenberg, 1965) were presented in the three categories; low self- esteem (7%), average self- esteem (78%) and high self- esteem (14%). The mean score was 20.542 while the standard deviation was at 4.22 indicating that the level of variance was very low. Majority seemed to have scored averagely.

Most of the participants scored average self-esteem, unlike a study that reported that students with disability had lower self-esteem because impairment due to injury determines a human's personality, and behavior (Narimari, & Mousazaden, 2010). The difference in the findings may be as a result of the adolescent with physical disability experiences, personality and their level of resilience (Foy et al., 2012), the parental relationship in managing the trauma and the effect of trauma (Kyung et al., 2011). The fact that the

participants were in a school set up with learners with physical disability, it is possible that the peers and structured support contributed to the high self esteem.

A teacher counselor made the following statement regarding self-esteem:

'When they walk the journey towards healing they begin to appreciate themselves'. (Teacher counselor).

The teacher counselor noted that the participant's self-esteem increased as they worked towards healing. Majority of the participants were in the category of average self- esteem and high self- esteem. This shows that most participants had high self-appraisal which determines self-esteem. This varies from a study that reported that persons with physical disability have low self- esteem because they considered themselves weak, expressed self - criticism, dissatisfaction, indecision and feared making decisions (Bhattacharjee, & Chetrik, 2014). The finding also contradicted a meta data synthesis that reported that trauma may lead to loss of self- esteem (VanWesel et al., 2011). The difference of the outcome of the current study could be the possibility that the participants may have gone through counseling sessions and peer support that improved their self-esteem (SE).

From the focus group discussion, the participants made statements such as:

"I feel that I am not the same as others"

"When I meet people who ask why I am the way I am, I feel that they do not understand me"

"I feel I am not the same as them so they stare at me and they look at the way I walk, it hurts me."

From the above statements, feeling different in regard to the body image, feeling that people do not understand you are indicators of a weak self-esteem. A poor self-image reminds them of the trauma that caused disability. This explanation is in congruence with a study that concluded that trauma lowers the self-concept, self-acceptance, self-image and self-esteem (Slanninova & Stainerova, 2015). The statement could be from few participants who scored low self-esteem. Some participants expressed low self- esteem in the discussions whereby, the following statements were made*:*

> *"Sometimes I feel bad when I go to buy shoes because my sisters are allowed to buy any shoes but I have to put on special shoes"*
>
> *"My sisters are bought for nice clothes that are very short when I ask for them I remember the shape of my legs, body shape or scars and people will keep looking at my legs."*
>
> *"I look at my old photos when I had two hands …now I cannot put on sleeveless clothes because I have one hand and I buy long sleeves clothes that have pockets to tuck in the other sleeve."*
>
> *"I cannot put on clothes in fashion I am reminded of my disability and its cause."*
> *"...I tried to kill myself but I did not succeed in 2013…"*
>
> *".. I tried to commit suicide twice, by hanging myself in the bed room but as I tried to kick off the stool I heard someone calling me and…I drank two liters of kerosene but woke up in the morning…"*
>
> *"I felt rejected because of my disability, I felt I have no future, I was the only one with disability."*
> *"When I go home, people do not understand me, they discuss how I got the disability and it makes me feel bad."*

From the focus group discussions, the participants raised issues that affect self-esteem in terms of feelings about themselves, that they are not understood, consciousness about their body image or effects of disability on their interest in fashion. The feelings may include

desire to commit suicide which highly relates with low self-esteem, recalling how they were before the trauma, rejection of self-image, memory of trauma and lacking coping strategies. The statements indicate that self-esteem is impacted by dressing or fashion, disability after trauma. This is similar to a study that reported that the participants were not able to put on stylish shoes and pants because of disability and this affected their self-esteem (Pizzi, 2008). From the Focus group discussions, the effect of memory of trauma which led to disability related with the adolescents with physical disability's self- esteem, this is in congruence with studies that reported the same (Cicheti, 2004; Tanya, 2005; VanWesel et al., 2011). The findings agree with a study among adolescents that reported that suicide among adolescents is mediated by self-esteem (Kuhlberg, et al., 2010). Self esteem being the value one places on himself means that low value for self easily translates to desire to commit suicide. As Adolescent with physical disability comprehend on their self-image and it reminds them of their state before the occurrence of trauma, this shows that the internalized memories are evoked as autobiographical memories (Foust-Vinson, 2010) which influenced levels of self-esteem. A participant in the focus group discussion reported this:

> *"I was told by my auntie that my dad left because they disagreed with my mom because of my disability and this makes me feel bad about myself" (female participant, 20 years old).*

For the participant, the news about her abandonment caused trauma that made her feel bad about herself hence causing low self-esteem. Abandonment leads to adolescent with physical disability's realization that they are rejected and this may influence their self-esteem. The participant's attachment system that assured her of safety and security, to help

her learn social competency (Ardvidson, Kiniburgh, et al., 2011; Kim & Cichetti, 2003), once damaged it caused trauma and loss of self-esteem. This led to inability to evaluate own worth, pride therefore the bad feeling about self.

4.3.4.4 Participants Levels of Dissociation

The Dissociation Event Score (DES, Bernstein & Putnam, 1986) was administered to the participants to find out the levels of emotional disconnection, physical and psychological loss of orientation. The participants were to indicate whether the statements were true or false. (Refer to appendix viii,the table may not fit one page).

Participants who listened but did not hear anything were 58.8%. Only 64.3% met people who claimed to know them yet they were not familiar with them. Most of the participants, 65.9% reported that they sometimes remembered past events as if they were happening today. Fifty seven percent reported that at times they were not sure of whether the things that happened to them were real or dreams, 48.1% went to familiar places but felt as though it was a strange place. While 47.3% at times watched the television or movie and they became so carried away by the story such that they were not aware of events around them. Forty five percent day dream to an extent that it feels as though it was real, 46.5% ignore pain while 46.5% stare at the space and are not aware of time passing. Forty four percent of the participants were not able to perform the duties they had easily, such as sports, schoolwork and interacting with friends while 41.1% found evidence of doing things they had never done. Some (38%) found drawings or notes that they did not remember writing or drawing, 31% heard voices telling them what to do or talking to them while, 34.1% saw as if people or objects appeared unclear or far away. The findings

dissociation were categorized into three levels; mild, moderate and severe dissociation. Table 4.22 shows the outcome:

Table 4.22 Levels of Dissociation

	Frequency	Percentage %
Mild	66	51.2
Moderate	63	48.8
Severe	0	0.0
Totals	129	100

The mean score was 39.852 which was very high indicating that most participants reported of mild or moderate dissociation. The standard deviation was 7.01 therefore the variation was not high.

Most of the participants had mild (51%) or moderate dissociation (49%). This indicates that all the participants experienced dissociation. Mild dissociation was experienced by 51%. This results are in agreement with a research that reported 10% of the general population responds with a greater tendency towards dissociation due to trauma while 50% experience chronic dissociation and this repeatedly is as a result of efforts to block off memory of trauma (Schmid, Petermann, Fegert, 2013:Vanderhert et,al, 2014). Moderate dissociation is characterized by failure to feel pain, blocked out senses (depersonalization) and conscious awareness that is separated from the environments (derealisation) (Band, & Moore, 2011). Remembering trauma enables the adolescent with physical disability to come to terms and integrate what is happening or happened (Malmoc et al., 2011) with the environment, therefore reduce episodes of dissociation.This allows adolescent with

physical disability experience the emotions brought up by trauma and at times present somatisation.

In the focus group discussions with the female participants, some participants reported experiences that were related to dissociation such as:

> *"When I remember the experience, I feel like I am not the one…"*
> *"I remember the event and do not believe it happened to me…"*
> *"Though I was asleep, during the road accident, I imagined and made pictures in my mind of how it all happened!"*

The statement like 'I am not the one' or 'I do not believe it happened to me' indicates a level of depersonalization hence the blocked out senses therefore reduced or no awareness that they experienced the effect of the trauma. The disturbance in an individual's thinking and bodily functions later on cause unusual interaction between consciousness and awareness (Levesque, 2017) hence dissociation. Dissociation causes the reaction to recalled trauma experience by the way the information is organized, self and identity is altered during dissociation (Karpel & Jerram, 2015). Dissociation interferes with recall of trauma events, by distorting the sequence, experience and nature of event. The following is a statement from a participant in the focus group discussions:

> *"I was in class eight during the post - election violence then something happened to me then I started having boils ,when I go to the toilet urine just comes without my control, I went to hospital and the doctor asked if I had sex and I said no. The doctor said I had a sexually transmitted infection. This affected me and I do not have concentration in class."*

The participant started by saying that ‘something happened’ yet does not explain what it was and then reports a sexually transmitted infection. It seems the participant had experienced dissociation such that she was not able to remember what exactly happened to her. Decrease in the specific memory construction enables the brain to evade negative emotions that are related to experience of trauma since detail of the memory of the trauma for the participant is too much (Cook et al., 2005). This finding confirms what other studies established that dissociation inhibits memory of trauma (Yanartos, et al., 2015; Levesque, 2017; Moore & Zoellner, 2007), by interupting with the assimilation of consciousness therefore providing room for distorted memory of the event or amnesia (Bhattacharjee & Chhetrik, 2014).

The next section will discuss the relationship between memory of trauma and psychobiosocial constructs among adolescent with physical disability.

4.3.5 Relationship between Memory of Trauma and Selected Psychobiosocial Factors among Adolescent with physical disability

The fifth objective sought to establish the relationship between memory of trauma and selected psychobiosocial factors namely social competence, somatization, self- esteem and dissociation. The findings are presented in this section

4.3.5.1 Relationship between Memory of Trauma and Social Competence

Pearson's correlation tests were carried out to ascertain the relationship between memory using internal loci memory triggers (ILMT) and external loci memory triggers (ELMT), extent of memory (EMT) and social competence (SC). Table 4.23 presents the outcome.

Table 4. 23 Pearson's Correlation of Memory of trauma and Social Competence (SC)

		Internal Loci Memory of trauma	Extent of Memory of trauma	External Loci of Memory of trauma
Social competence	Pearson Correlation	-.044	.044	.005
	Sig. (2-tailed)	.619	.619	.957
	N	129	129	129

External Loci Memory triggers had a very weak positive correlation with social competence, r (129) = .005 p = .957. The relationship however, was not statistically significant, $p > 0.05$.

As discussed in earlier findings, most of the participants had their external triggers of memory as their parents. Parents played a big role assisting adolescent with physical disability to develop social competencies. This finding is similar to reports that the parent's response to trauma is very important in influencing the child's competency while managing memory of trauma (Kyung et al., 2011; Swart et al., 2017). The positive relationship with social competence among participants may be due to parental support which influence how they perceived themselves. The parent's reports as triggers of

memory contributed to formation of autobiographical memory among adolescents with physical disability.

There was a negative relationship between internal Loci Trigger of Memory of Trauma and social competence, r (129) = -.044 p = .619. This implied that an increase in the internal memory triggers correlated with decrease in social competence. However, this relationship was very weak and not statistically significant, $p > 0.05$.

From the findings, increased memory triggers indicated that the participant had increased awareness of the trauma event and had increased self-awareness which reduced social competence but at a very low extent. The significance of triggers of memory and social competence could have been influenced by the parental impact as majority of them reported triggers from parent's reports. Guidance and counseling and peer support may have contributed to the results.

The findings from Pearson's correlations show that triggered memory of trauma had a weak influence on social competence. This finding is in agreement with findings that explain that memories of trauma events lead to relationship problems (Malizia, 2020), dysfunctional beliefs (Swart et al., 2017), and behavior problems (Van Wesel et al., 2011). In this case, since the participants reported the trauma events that lead to memories, triggers of memory influenced the direction of the relationship between the adolescents with physical disability social competence, this finding was in tandem with a study that reported the same (Resenbach et al., 2013). The inverse relationship may be as a result of raised involuntary awareness of self through the triggered memory which influenced self-

perception. The awareness of self may have made participants to make deliberate effort to improve social competence.

Extent of memory had a correlation of r (129) = .044 p = .619, a weak positive relationship and statistically insignificant, $p < 0.05$. This finding is inconsistent with the results that explain that extent of memories of traumatic incidence are pivotal to relationship problems and interaction with others (Myrick,Green & Crenshaw, 2013). Since social competence is learnt, it is possible that adolescents with physical disability were exposed to social learning environment that enhanced social competence. Most of the participants (80%) reported average social competence.

The findings on internal memory triggers are in tandem with the finding that, triggered memory of trauma is painful or uncomfortable and it interrupts with emotional cognition, which in effect affects social competence (Smith et al., 2014) hence the negative relationship. Trauma affects the schema of adolescents with physical disability and their feelings. This is because the residual effect of the feelings of trauma may be relived as the individual socially interacts, this may influence the levels of social competence. Difficulty in managing stress, irrationally responding to challenging situations and inability to form healthy relationships (Harper, 2014; Anish et al., 2014) are some effects of trauma on social competence. Majority of the participants reported vivid to profoundly vivid memory of trauma meaning and the memories may have contributed to increased awareness of self hence improve social competence.

The next section discussed the relationship between memory of trauma and somatization.

4.3.5.2 Relationship between Memory of Trauma and Somatization

Further, correlation of external loci triggers of memory of trauma (ELTMT), internal loci triggers of memory of trauma (ILTMT), extent of memory with somatization was carried out and Table 4.24 shows the outcome.

Table 4.24 Pearson's Correlation between Memory of Trauma and Somatization

		External Loci of Memory of trauma	Extent of memory	Internal Loci of Memory of trauma
Somatization	Pearson Correlation	.239**	.155	.162
	Sig. (2-tailed)	.006	.080	.066
	N	129	129	129

The correlation between external memory triggers and somatization was r (129) = 0.239 p = .006 $p < 0.05$. This was a weak positive statistically significant correlation. Internal loci triggers' correlation and somatization was r (129) =. 162 p =.066, a weak positive correlation with somatization. The correlation between extent of memory and somatization was r (129) =. 155 p =.080, a weak positive relationship that was not statistically significant. From the provided correlations, memory of trauma seems to have a weak positive correlation with somatization. This results are in tandem with findings by (Bob, et al., 2013) that reported that somatisation is significantly proportional to stress related psychopathology. Authors link somatisation to trauma hence the memory of trauma if the symptoms occur after trauma. The trauma victim seeks the attention of caregivers through

psychosomatic pain (Tucker & Foote, 2007; Hart, Hodgkinson, Belcher, et al, 2013; Swain, Pillay & Kliewer, 2017). The weak positive direction of triggers of memory of trauma with somatisation in the findings could be due to the fact that most participants experienced mild somatisation.

The findings of positive correlations are congruent with a finding that reported that somatization is as a result of accumulated life events and memories over a period of time (Bob et al., 2013). The finding agrees with a study that reported that patients are at risk of psychiatric problems such as somatization problems due to the prevailing distressing conditions, (Samaha, Elsaid, & Sabri, 2015), such as unprocessed memory of trauma. It also agree with Resenbach et al. (2013) who noted that, memory of trauma depending on its levels or intensities influences the occurrence of psychosomatic symptoms.

Memory derived from trauma may cause somatization when the individual is not able deal with the recalled memory, therefore he dissociates resulting to the trauma presenting in the body cells (Bergouignan, Nyberg, Ehrsson, 2014). Somatization is related to both trauma, dissociation and defense mechanism, as a result of suppression (Bob et al., 2013; Luoni, 2018; Vega, Liria, & Prez, 2005). Physical symptoms are a way of validating a subjective sense of suffering and a call for attention. The memory triggers could either be within the environment or internal (Malmoc & Laidlaw, 2010; Kim et al., 2004) hence the external and internal loci triggers of memory. Somatization is a learned way of dealing with acute stress. When adolescent with physical disability are given attention the first time they present the somatized symptoms, a pattern of exhibiting the symptoms reoccur with continued support from the caregivers. External triggers of memory of trauma, causes

individuals to relive the pain experienced in the past and the individual may suppress them causing the storage of trauma in the cells thus somatization (Hwang & Hyun, 2013; Ehler 2010; Uttl Ohta & Siegenthaller, 2006).

It is reported that most people with somatization disorder were exposed to an early environment that was emotionally harsh, with frequent criticism, insults, rejection, physical punishment therefore, somatization presents as a defense mechanism to avoid further psychological pain (Hyphantis, et al., 2009). It will be recalled that some of the adolescent with physical disability had a troubled early life. Therefore, the finding is not surprising as they learn to respond to the world in a protective manner. Somatisation as a learned program, triggered memory prompts the brain that is preprogrammed to respond in a specific manner therefore somatization symptoms.

The reports from parents regarding trauma evoked the memories of adolescent with physical disability and some of the suppressed feelings were brought to the surface due to the recovered memories. Feelings and thoughts that are suppressed form intrusive memories which recur involuntarily, interrupting the thought process. Adolescent with physical disability suppressed the thoughts, resulting to experience of psychosomatic symptoms. This finding is in tandem with a study that reported that the body has tendencies to internalize memories (Waikamp & Barcelos, 2018). The memories later on develop into feelings. If the feelings remain internalized, they become avenues for physical discomfort and symptoms.

The internal loci triggers of memory did not have a statistically significant relationship, meaning that it is possible for the brain to learn to protect itself from the effects of internal

loci memory triggers through somatization therefore causing the insignificance between the internal loci memory and somatization. Coping mechanisms for resolution of the events of trauma (Malekoff, 2008), enable the body to respond to the internal loci memory triggers.

The internal triggers of memory of trauma, cause the adolescent with physical disability to repress the outcome of the recalled event and due to the internalized feelings somatization occurs. Internal memory triggers bring the memory to consciousness enabling the participant to employ strategies to deal with the consequences of trauma. The stress from trauma can be profound such that the participant is not able to process and integrate the information (Bob, 2013). Thought stopping can be employed as a defense mechanism technique that renders memories of trauma unattended, though this technique increases chances for somatization. Maladaptive coping strategies, a result of internalized and suppressed memories of trauma and they increase chances for psychosomatic symptoms to develop. Healthy coping mechanisms such as facing the painful thoughts and feelings of trauma and resolving issues that arise after internal loci triggers of memory enable the adolescent with physical disability to overcome adverse effects of memory of trauma. Somatization had a positive relationship with memory of trauma.

The next section, objective five, discusses the relationshing between memory of trauma and self-esteem.

4.3.5.3 Relationship between Memory of Trauma and Self- esteem

Correlations were carried out to find out relationship between external loci memory triggers (ELMT), internal loci memory triggers (ILMT) extent of memory (EMT) of trauma and self- esteem as the dependent variable. The Table 4.25 shows the outcome.

Table 4.25 Pearson's Correlation of Self Esteem and Memory of Trauma

		External loci of Memory of trauma	Extent of Memory of Trauma	Internal Loci Memory of Trauma
Self Esteem	Pearson Correlation	-.062	.056	-.157
	Sig. (2-tailed)	.485	.529	.076
	N	129	129	129

From the Table 4.25, there was a weak negative correlation between externally triggered memory with self-esteem (SE), r (129) = -.062 p = .485, this indicates an inverse relationship though not statistically significant. This shows that an increase in memory of trauma is associated with a decrease in self-esteem.

There was a weak negative correlation between internal loci memory triggers and SE, r (129) = -.157 p = .076, a relationship that was not statistically significant, $p<0.05$. This means that the more the participant experiences internal memory triggers, the lower the self-esteem becomes. The inverse relationship is caused by awareness of the trauma event and this may affect the way they perceive themselves.

There was a weak positive correlation between extent of memory of trauma and SE, r (129) = .056 p = .529, a relationship that was not statistically significant $p<0.05$. This finding is in agreement with a study that concluded that participants with high self- esteem coped better with trauma and were more resilient (Bonanno & June, 2008). If self-esteem was already high, the participant was able to overcome the negative effect of memory of trauma hence the statistically insignificant results. The participant's triggered memory of trauma increased while the self-esteem reduced. This results are unlike results of a study that reported that children who experienced trauma in the form of physical abuse, neglect, emotional and sexual abuse had lower self- esteem and externalized behavior (Tricket, Kim & Prindle, 2011). The results were not in tandem with Reiland and Lauterbach (2008) who reported that those who reported abuse had a lower self esteem. The difference may be caused by the fact that the participants may have had avenues to improve on their self esteem.

The extent of memory had a positive relation, this is not in tandem with results from a study that reports that physical disabilities negatively affect young people's self- esteem, whereby the greater the disability the lower the self- esteem (Miyahara, & Piek, 2006), disability may in itself be a reminder of trauma. Some participants in the current study, had disability that originated from trauma yet they scored average and high self-esteem. While dysfunctional beliefs are a result of the past trauma (Swart et al., 2017) especially in the family, the beliefs influence the Adolescent with physical disability decision making, choice of company and construction of cognition. The extent of memory of trauma did not have significant association with self-esteem. This finding is unlike a study that reported

that memories affect the past, present and future (Foust -Vinson, 2010) of an individual. It is possible that most Adolescent with physical disability who participated in the study experienced social support from their communities, developed a healthy self concept which has a correlation with self-esteem (Narimari & Mousazaden, 2010).

Low self-esteem, may lead to anti social behavior which affects social competence and somatisation. The levels self esteem can be related to increased self awareness and knowledge of the stored memories of trauma. Generally triggers of memory had a negative relationship while extent of memory had a positive relationship. Therefore memory of trauma influenced self esteem.

In the next section, the relationship between memory of trauma and dissociation was explored.

4.3.5.4 Relationship between Memory of Trauma and Dissociation

Findings from Dissociation Event Scale were correlated with triggers of memory of trauma and extent of memory to find out the relationship. Table 4.26 shows the findings.

Table 4.26 Pearson's Correlation of Memory of Trauma and Dissociation

		External Loci of Memory of Trauma	Extent of Memory of trauma	Internal Loci of Memory of trauma
Absorption factors	Pearson Correlation	.169	.059	.248**
	Sig. (2-tailed)	.055	.507	.005
	N	129	129	129
Derealization factor	Pearson Correlation	.128	.052	.064
	Sig. (2-tailed)	.148	.555	.474
	N	129	129	129
Amnesia factor	Pearson Correlation	.177*	.129	.235**
	Sig. (2-tailed)	.045	.145	.007

	N	129	129	129
	Pearson Correlation	.171	.036	.256**
Dissociation events scale	Sig. (2-tailed)	.052	.686	.003
	N	129	129	129

There was a weak positive relationship between dissociation and external memory of triggers r (129) =.171, p = .052, a relationship that was not statistically significant, p > 0.05. An increase in recall from external loci memory triggers correlated with increase in dissociation. The triggers increase content of memory and contributes to awareness of the trauma event, feelings and thoughts of the trauma therefore the defense mechanism to block the memories activates. Memories of trauma enable the individual to encode and make meaning of the event. External triggers did not highly influence dissociation as indicated by the significance levels. Dissociation affects the integration of the whole system, the physical, the psychological and the biological. Due to the ability of children and adolescents to recall trauma (VanWesel, 2011), the effect of dissociation is minimal. These findings are similar to a study that reported that the dissociation mean scores for newly arrived participants from combat and the settled participants from trauma did not differ much (Hebert, Langevin & Oussaid, 2017). This means that whether the trauma was old or recently experienced, dissociation would occur as long as the memories are experienced.

A weak statistically significant positive relationship was established between internal loci triggers and dissociation r (129) = .256 p = .003 p < 0.05. Meaning that an increase in internal loci memory triggers was correlated with an increase in dissociation. This was because the awareness of painful memory caused the unconscious status of the mind protect self from the harm that could be caused by the trauma as per the psychoanalytic

theory. While one can control the external triggers by deliberate distraction, internal triggers may be difficult to control due to the activity of the conscious mind and internalized thought processes. Since the relationship was significant, it means the two variables strongly influence each other. The findings agree with a study that reported that dissociation is present in everyday life (Padhy et al., 2016), because of internal triggers of memory of trauma. In dissociation, memory of trauma is prevented from consciousness causing trauma related memory decay (Fivush, 2002) hence the significant relationship. Dissociation interferes with the performance of working memory (Frewen, et al., 2014). The internal loci memory triggers mainly influence the operation of implicit memory.

There was a weak positive relationship between extent of memory and dissociation, r (129) =.036 p = .686. The correlations indicate that the increase of content of memory of trauma is associated with an increase in dissociation episodes. However, the relationship was not statistically significant, $p > 0.05$. Previously in the current study, the extent of memory findings showed that 23% of the participants had full recall of the trauma event, therefore the rest of the adolescent with physical disability had fragmented memory of the event. These findings are similar to the study that reported that insufficient encoding of memory of trauma leads to fragmentation of memory (Bedard-Gilligan, & Zoellnern, 2012) causing one not to remember the whole event. The findings are in tandem with a research that explained that young people are capable of obtaining and recalling memories of past experiences (Bauer, & Larkina, 2014; Cordon et al., 2004; Peterson, Grant, Boland, 2005). Children maintain vivid and comprehensive memories of trauma (VanWesel et al., 2011). Extent of memory does not provide an environment for dissociation because with the

increase in vividness of the memory, the individual recalls more content hence reducing chances of the occurrence of dissociation. The internal loci memory triggers relate with the extent of memory therefore resulting to dissociation. This finding is in agreement with a study which confirmed that there is a relationship between trauma and dissociation (Yanartos et al., 2015; Armour, Karstoft & Richardson, 2014). Dissociation would therefore affect the individual's productivity since it interferes with alertness, concentration and interactions.

There was a weak positive relationship between derealisation factor in dissociation and memory of trauma, r (129) =.052 p = .555, a relationship that was not statistically significant. The memory of trauma leads to continous dissociation as the individual resists the painful feelings evoked by the memories. Derealisation occurs during dissociation whereby one feels that they are not the ones experiencing the painful event, and it interferes with memory. The environment, sense of self and identity, perception and mobility (Karpel & Jerram, 2015) is therefore distorted from the reality of the victim of trauma. The process of dissociation therefore interferes with the way the individual responds to their environment and the people around them because during the episode the individual is not in touch and not himself.

There was statistically significant positive relationship between dissociative amnesia and external loci of memory triggers r (129) = .177 p = .045 and internal loci of memory triggers, r (129) = .235 p = .007 and extent of memory, r (129) = .129 p = .145 respectively. Amnesia influences the recall of personal information regarding trauma (Soffer-Dudek, Lassri, & Shahar, 2015). It is also reversible as the person continues to heal

from the effect of trauma. The findings show a significant correlation in internal and external triggers of memory, they are in agreement with a study that reported that internal triggers caused memory of trauma more than the external triggers (Malmo et .al, 2010), implying that if the adolescent with physical disability experienced more of internal loci triggers of memory of trauma, then the levels of dissociation would increase because more of the event is recalled. When amnesia occurs, then dissociation it is a sign of increased since the memory of the event is blocked off completely.

There was a positive relationship between dissociative Absorption ELMT r (129) = .169 p = .055, extent of memory r (129) = .059 p = .507. ILMT r (129) = .248 p =.005 $p < 0.05$ had a positive relationship statistically significant between dissociative absorption and internal loci of memory triggers. Absorption engages the individual beyond consciousness as they concentrate on their activity (Carleton, et al., 2012) causing experiencial avoidance. Increased memory may lead to more absorption into the activity one is involved in to reduce the effects of the memory as a defense mechanism. This finding is in tandem with a study that reported that dissociation is proportional to stress that is related to symptomatology (Bob et al., 2013). Generally, dissociation episodes may result to interference with self competence, self esteem and the presentation of somatic symptoms. Internal Memory triggers had a greater effect on dissociation compared to external and extent of memory of trauma.

4.3.5.5. Relationship between Impact of Memory of Trauma and Selected Psychosocial Constructs

A further exploration of the relationship between impact of memory of trauma and selected psychosocial constructs was carried. Table 4.27 shows the results.

Table 4.27 Pearson's Correlation between Impact Memory of trauma and selected Psychosocial Constructs

		Somatization	Self esteem	Dissociation	Social competence
Impact of memory of trauma	Pearson Correlation	.314**	-.259**	-.530**	-.157
	Sig. (2-tailed)	.000	.003	.000	.075
	N	129	129	129	129

From Table 4.28, the correlation of impact of memory of trauma and somatization *r* (129) = .314 *p* =.000. This was a positive statistically significant relationship. This result is in agreement with a study that reported that trauma events such as injuries and sexual abuse increase conversion (Stone, et al., 2009), symptoms that in adulthood are influenced by interpersonal trauma in child hood. The findings are also in tandem with Schmid et.al, (2013) who reported that trauma results to physiological, self, functional, and behavioral, attention dysregulation, social, somatization and bodily sensory perceptions. The findings are also in tandem with Ndetei et al., (2013) who reported that internalizing of problems among the youth in Kenya contributed to somatic complains.

Correlation of impact of memory of trauma with dissociation is r (129) = -.530 p =.000. This was a strong negative statistically significant relationship. This findings are in agreement with reports from Center of Substance Abuse in the US, (2014), which emphasized that dissociation takes place after the trauma event, this shields the individual

from experiencing the full impact of trauma and keeps them away from the distress caused by the trauma. The findings are also in agreement with a literature study that reported that dissociation is a product of a history of trauma (Dalenberg, Brand et al, 2012) and a coping strategy (Malmoc, 2010). Vanrevenzwaajet al., (2010) reported that dissociation affects all areas of psychological functioning. In this case the impact of memory of trauma is less experienced with increase of dissociation because the individual has dealt with the feelings and thoughts regarding the trauma hence faced the reality of the event.

Pearson's correlation of impact of memory of trauma with self-esteem was r (129) = -.259 p =.003, which was an inverse statistically significant relationship. Article reviews by Lang and Sharma-Patel, (2011) reported that low self esteem is highly related with maltreatment in childhood therefore in agreement with the presented results. The results are in greement with a study that reported better coping of trauma by people with a good self esteem (Bonano, 2005). Gao et al., 2019 is also in agreement with this finding, they reported that self esteem is a tool for coping with stressful events.

Pearsons's correlation of impact of memory of trauma with social competence was r(129) = -.159 p = .075.This was an inverse relationship indicating that as the the impact of memory of trauma decreases social competence increased,which is in agreement with a study that explained that children with impairment had a lower social competence (Beauchamp et

al., 2009) probably because of their experiences. This is in tandem with a study that recommended social emotional competencies to enable young people mitigate the impact

of trauma Pears et al., (2010) and repetative child abuse leads to psychopathology (Mclaughin, Rodman & Weisman, 2020; Waikamp & Barcello, 2019).

Generally, the correlations of impact of memory of trauma with the psychosocial constructs indicate a significant relationship between the impact of memory of trauma and the psychosocial constructs. The findings indicate that the impact of memory of trauma is more likely to influence the psychosocial constucts because of its more permanent nature as compared to the memories which may be temporary therefore causing the effect of trauma but for some limited period. The next objective will explore mitigating effects of trauma.

4.3.6 Strategies for Mitigating Effects of Memory of Trauma on Adolescent with Physical Disability

In the sixth objective, the study explored how to mitigate the effect of memory of trauma on self- esteem, social competence, dissociation and somatization. Data for this objective was obtained through two focus group discussions and one interview. The two focus groups included for male participants (n = 10) and another group for female participants (n = 10); while the interview involved two teacher- counselors. The participants discussed possible ways that would help manage the relationship between memory of trauma and selected psychobiosocial constructs among adolescents with physical disability. This was done by discussing the experiences they had with significant others as they searched for ways to cope with the memory of trauma. Statements from participants regarding their

interactions with the significant others guided the development of mitigation strategies. The following statement was made:

> *"I was very hurt when one of the house mothers told me to lift myself after I fell and could not get up because I was still healing after a corrective surgery."*

From this comment, it seems that the caregiver did not understand the participant's need for support especially after trauma that resulted from intense painful post-surgery.

> *"My guardian told me that I am cursed because of my disability and that is why my father had to leave."*

The participant's comment infers rejection and abandonment as a result of the memory of trauma. The conversation between the participant and the guardian caused trauma because it secluded him in the community as a cursed person. Trauma from the information may lead to consequent psychological damage owing to the fact that adolescents are concerned about self-image and other people's perception about them. Failure to positively appraise adolescents lead to social incompetence. Other participants gave the following statements regarding their social environment at home.

> *"My parents and siblings are not free with me, they do not know how to treat me and do not allow me to get involved in their activities in the home."*

> *"My parents give responsibilities to my brothers and sisters but they do not give me anything to do, this makes me feel left out and not important."*

> *"When my grandmother who is my guardian died, she left me with my uncle who said I move in with them but it only lasted two weeks and my uncle's wife told me to move out because she did not know how to live with me especially my disability."*

> *"My siblings called me names that related with my disability, it made me feel more of the disability and not feel like a human being."*

From the discussions, the memory of trauma was externally activated by parents, siblings, caregivers, relatives and guardians. Adolescents with physical disability's memories of

trauma were triggered by how caregivers interacted and treated them. The focus group discussions statements stemmed from the parent's reaction after the trauma event that affected adolescents with physical disability. This is in agreement with a study that reported that consequences of trauma on the significant others or caregivers affects children (Felitti & Anda, 2010) or recipients of care therefore interfering with the process of healing. Autobiographical memory of the trauma event influenced the caregivers' response (Williams, et al., 2007), to adolescent with physical disability, who in turn are influenced towards overcoming the trauma feelings or are subdued by the memories depending on the caregiver's level of support. The significant other's support enables Adolescents with physical disability to cope better with the trauma.

Participants in the focus group discussions reported various traumatic experiences such as rape, amputation of limbs, frequent surgical operations, sudden departure of a parent due to disability of the child, parent's divorce, rejection and mistreatment by family, house parents, loss of loved ones, accidents, sudden inability to carry out activities of daily living and schoolmates. Findings from the earlier objectives of the current study, confirm that participants recalled the trauma events and the origin of trauma. Adolescents and children who were exposed to trauma were prone to social, emotional, developmental problems and their self-concept is altered (Campbell 2016) as demonstrated by dissociation.

Focusing on the parent, a participant reported this;

> *"My parents always compared how I do things with the other brothers and sisters. I do not like being compared because this makes me feel like I am always different from the others."*

Participant in the focus group discussions felt that comparison with their sibling was uncomfortable and it emphasized their difference which was caused by a trauma event. The participants wished that parents would express love and help raise their self- esteem. They explained that parents need to encourage equal treatment for their children whether with disability or not.

Since autobiographical memory emanates from the Adolescent with physical disability environment, media, the five senses and interactions, parents were expected to be instrumental in helping them to face and deal with the triggers within the environment. This is imperative because findings in this study and other studies confirmed that the impact of memory of trauma is influenced by parental support, significant others and it is in agreement with other studies (Ardvidson & Kiniburgh, 2011). The parent's response to trauma and reaction determines whether they are able to support the adolescent with physical disability or pull him/her back into reliving the trauma event.

Participants indicated that their caregivers included parents, siblings, house parents, nurses and the teachers. Some of the participants felt abandoned, unappreciated, labelled, discriminated against and misunderstood by the caregivers and this reminded them of the trauma they experienced. One of the participants reported this:

> *"You see the teachers discuss us in the staffroom and this make us afraid of sharing our problems with them"*

They wished that the teachers maintained confidentiality so that they would freely share in confidence. The teacher's task was to provide a safe place for the adolescent with physical disability to face and deal with the pain of loss, grief or any other trauma memories they

experience (Malekoff, 2008). A report from a survey carried out in Kenya indicated that the majority of perpetrators of violence to the participants were teachers (99%), followed by fathers and mothers (UNICEF, 2012). Teachers need to work towards getting the adolescent with physical disability's trust so as to enable them to work through the effects of memory of trauma. One of the participants said this:

> *"When I go for counseling, since the counselor is a teacher I am always afraid that they will discuss what I said in the staff room with the other teachers."*

The dual relationship between the student and counselor teacher requires that they assure students of a safe environment and confidentiality during counseling sessions. This calls for teacher counselors to adhere to counseling ethics so as to gain confidence and help the adolescent with physical disability. Since the teacher is a third party in a students' life, more effort may be required so as to gain the student's trust. The gained trust would facilitate adolescent with physical disability to overcome feelings evoked by their memory of trauma and deal with the emotions that follow.

Some participants felt that the community triggered memory of the trauma by the way they treated them. The following statements express the situation from adolescents with physical disability who experienced traumatizing accidents:

> *"When I walk in the village, people stare at me and others ask if I am sick and that is the way I move since the accident."*

> *"I am not allowed to carry out activities at home because they think that I may not do them well or could possibly hurt myself in the process."*

The participants detested excess sympathy from the community that made them feel different due to the trauma they experienced and predisposed to mistreatment. They emphasized on the community to accept adolescents with physical disability and allow

them to participate without discrimination. The community needs to provide trauma victims a safe environment that enabled them to carry on their day to day activities characterized with resilience (Masten & Narayan, 2012). A safe environment enables the adolescent with physical disability avoid complex trauma such as Post Trauma Stress Disorder (PTSD) due to the memory, since this may lead to poor mental health and phsysiology (Filiano,Tustison, et al., 2016).

Participants recommended that counselors help in enhancing their self-image, work through issues of trauma, help parents understand what they are going through as they help them develop self-acceptance. The participants proposed that they would like support forums to share their experiences so that others who are struggling with trauma memories would find a solution. Statements such as this:

> *"Increased awareness regarding the effect of trauma is needed. This is because many others are struggling with thoughts and not knowing how they are affected".*

This participant expressed that many trauma victims recalled trauma and do not talk about it yet they are affected. The call for awareness on the effect of memory of trauma causing events is necessary because many people struggle with the aftermaths of trauma which may result to post traumatic stress disorder or acute stress (Filiano et al., 2016; Felitti et al. 2010). Since children with disability are more prone to experience trauma (Goldson, 2001) and have memories of trauma, it would be best practice to develop a model to help manage the experiences.

The concept of a collaborative-cum-multidisciplinary approach in managing trauma seemed necessary in mitigating the effect of memory of trauma on adolescent with physical disability after considering the statements of the participants.

A study that carried out a meta-data analysis noted that most studies reported religious, political, ideological support to increase the effectiveness of coping strategies (VanWesel, 2011). Gopinath et al. (2015) recommended that after injury, people develop psychological symptoms, consequently poor mental health hence the need for support. Due to the symptoms that are mentioned, multi-disciplinary strategists comprising of health care, psychologists, rehabilitation physicians, physiotherapists and occupational therapists would be required to facilitate the process of returning to a state of near normalcy.

Another study recommended that the counselors need to provide interventions using psychological therapies with focus on the multisystem therapy at home that is a community based model used after exposure to trauma (Wethington, et. al., 2008). The suggestions are in tandem with a study that recommended a multi-tiered system of support, for youth who experienced trauma, which is a continuum that explores the environment of the school's social, emotional, mental, physical health and the overall wellbeing of students while involving the community (Rossen & Cowan, 2010). While the model requires the involvement of the community to provide support, it is evident that the community need to be prepared to provide quality support for the adolescents with physical disability affected by trauma.

The current study reported that care givers, teachers, parents, social workers, siblings, medical teams and adolescents with physical disability may have experienced common trauma, yet they would be part of a support team for adolescent with physical disability. They need to heal from their own experience in preparation for them to be involved in facilitation to mitigate the effect of memory of trauma among adolescents with physical

disability. This is in agreement with the 3-5-7 model of trauma management (Henry & Meyer, 2013). This model addressed trauma among the youth. It focuses on enabling the person to identify, make sense out of the event, gain self-awareness and explore interpersonal abilities through the help of counselors, social workers and family.

The aforementioned models are adequate but are not designed for populations with adolescents with physical disability. The adolescents with physical disability's suggestions in the focus group discussions indicated more needs to be met, that requires resources and human personnel to be included in the model. The personnel include, physiotherapists, occupational therapists and doctors for support of those affected by trauma. The medical team would manage physiological needs that would facilitate healing and therefore allow Adolescent with physical disability to focus on their psychological wellbeing by working through the effects of trauma with the support of social workers, counselors, parents and spiritual leaders. This study therefore proposes a matrix for a model to mitigate the relationship between memory of trauma with psychobiosocial constructs.

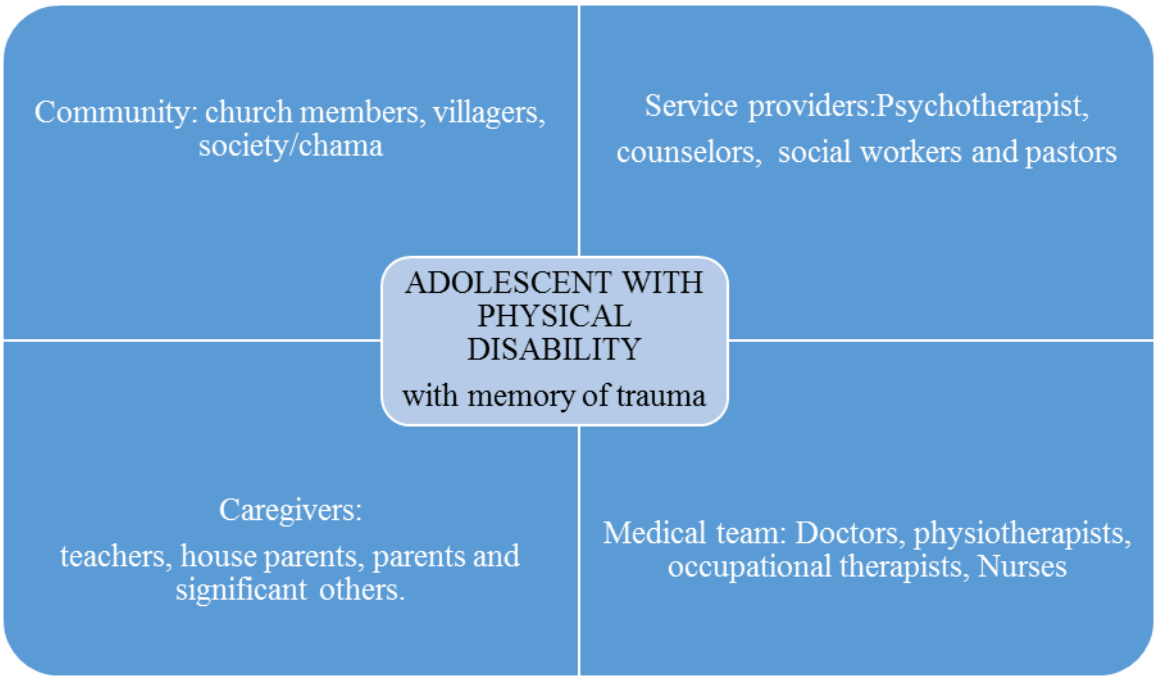

Figure 4.1 Matrix for the proposed model of mitigating effects of memory of trauma (Author)

From the matrix, in the middle is the adolescent with physical disability who has experienced trauma and memories of trauma. He/she is surrounded by an environment which is made of the community, caregivers, teachers, psychotherapist and medical staff such as physiotherapist, nurses and doctors. The community surrounding the adolescent with physical disability focuses on managing variables such as physiological needs, psychological which covers the psychobiosocial constructs. The proposed matrix for the model of collaborative-cum-multidisciplinary approach, would ensure that the memory trauma is holistically managed so as to mitigate the effects of memory of trauma on the adolescent with physical disability. In this model the community of professionals and significant others who make up the support team need to manage their own memory of

trauma before they work with the traumatized adolescent with physical disability. In this case, screening for trauma and its memory is carried out among the support personnel, the significant others, to identify levels of impact of trauma (primary or vicarious) and its memory so as to help them work through their own trauma issues may relationship their support for adolescent with physical disability. Thereafter, professionals would train the significant others so as to build their capacity. After training, the significant others are assisted to move towards supporting the adolescent with physical disability in a safe environment.

The trainings are aimed at alleviating the possibilities of vicarious trauma, damaging the adolescent with physical disability further or exposing the adolescent with physical disability to faulty manner of dealing with memory of trauma as suggested by (Masten & Narayan, 2012; Felitti & Anda, 2010). The adolescent with physical disability who experienced trauma would be assisted by individuals within the different disciplines and environments, to work through trauma and its memory towards healing. The purpose is to ensure that there is a collaborative, multi-disciplinary approach towards providing support for Adolescent with physical disability, enabling them to overcome the effects of the memory of trauma on their psychobiosocial constructs. This ensures that adolescent with physical disability fits within the community after trauma without struggling with their self-esteem, social competence, internalized negative memories and feelings that may cause dissociation and somatization.

This matrix is proposed as a result of studying other models and observing that most of them were constructed for the general population. The matrix in this study focuses on the

adolescent with physical disability and emphasizes on their needs and the kind of support that is required. The model will enable the adolescent with physical disability increase confidence of being understood accepted with their acquired disability and have their needs met such as physiotherapy, occupational therapy and counseling. The matrix will provide guidance development of a comprehensive model for mitigation of relationship between memories of trauma.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains summary of the findings, conclusions of the study and relevant recommendations for further study based on this study. The purpose of this study was to explore the relationship between memory of trauma and psychobiosocial constructs among adolescents with physical disability. The selected psychobiosocial constructs included social competence, self-esteem, somatization and dissociation.

5.2 Summary of Findings

The study had six objectives, these were to establish experience of trauma, analyze triggers, and analyze impact of memory of trauma among adolescents with physical disability, levels of psychosocial constructs, relationship memory of trauma with psychosocial constructs and strategies of mitigation of effects of memory of trauma. Majority of the participants were between ages 14 to 18 years (71%). Forty one percent of the participants were female while 57% were male. Most of the participants (55%) were raised by their parents. The findings of the study indicate that memory of trauma was experienced among the participants and could affect selected psychobiosocial constructs (somatization, self-esteem, social competence and dissociation) in varied directions. The following are the findings as per the objectives.

5.2.1 Causes of Memory of Trauma among adolescents with physical disability

Findings confirmed that all participants experienced trauma at different levels. Forty percent of the participant's experienced mild trauma, 50% had moderate trauma while only ten percent had profound trauma. All the participants recalled the feelings they experienced during the trauma event. The trauma causing events that the participants experienced led to memory of trauma. The study established that the following events were experienced; physical and psychological abuse such as being beaten unfairly, mistreatment by significant others, forced to have sex or touch other's private parts; Events beyond human control such as floods, earth tremors, loss of loved ones, political aftermaths like post - election violence, road traffic accidents, amputation and illnesses that caused sudden disability.

Majority of the participants recalled multiple trauma. Trauma as a result of human activity affected fewer participants followed by abuse or mistreatment and most of the participants reported sexual abuse. Majority of the participants experienced moderate impact of trauma. This results indicated that there is a high prevalence of adolescents who were exposed to trauma in Kenya, therefore they had memories of the trauma.

5.2.2. Triggers of Memory of Trauma

The second objective assessed triggers of memory of trauma and the extent of memory. The study explored external loci triggers of memory and internal loci triggers of memory. The

external loci triggers of memory of trauma included most reports from parents, then from diaries, hospital, with the least from reports to the authority. From the extent of memory, most of the participants remembered the whole experience, few did not remember the trauma experiences but know they were involved in a traumatic event while fewer remembered some events or remembered part of events while others remembered everything much later. Adolescent with physical disability remembered the event after a long time. This showed that it is possible to recall a percentage of the trauma event and not all of it.

The extent of memory among participants was categorized in this order: vivid memory which was reported by majority of participants, followed by very vivid, profoundly vivid and lastly vague. The categories of extent of memory contributed to how much of the memory of trauma was imprinted in the mind. A further exploration of extent of memory indicated that most participants remembered the experiences in bits, dreamt of their traumatic experiences, think about it, remember their past experiences. This meant that most of the participants frequently had memories of the trauma event though at different levels indicating that memory of trauma leaves an imprint in the mind of the victim.

5.2.3 Participants' Levels of the Selected Psychosocial Constructs

The fourth objective aimed at assessing the levels of selected psychosocial constructs. The constructs were later on correlated with memory of trauma. Findings showed that in social competence, majority had average social competence (74%), above average were 19.4% and only 6% had below average. Ninety percent had mild somatization while 9.3% had

moderate. Participants with average self-esteem were 76%, high self-esteem 14% and 9% low self-esteem. Most participants scored very highly when compared with the findings of empirical studies and the knowledge that they had experienced trauma and disability.

5.2.4 Correlation between Impact of Memory of Trauma and psychobiosocial constructs

The fourth objective of the study was to find out the levels of impact of memory of trauma that was experienced by the participants. The findings showed that most participants experienced moderate impact of trauma, while the rest experienced mild impact of trauma. Since few participants or none of the participants experienced profound impact of trauma, this was an indicator that they were not adversely affected by the trauma event. Correlation between impact of memory of trauma and psychobiosocial constructs indicated an inverse significant relationship with all the constructs except for somatization.

5.2.5 Relationship between Memory of Trauma and Selected Psychobiosocial Constructs

The fifth objective was to find the extent of relationship between memory of trauma on selected psychobiosocial constructs. The selected psychobiosocial constructs included self-esteem, social competence, somatization and dissociation.

5.2.5.1 Relationship between Memory of Trauma and Social Competence

Social competence was assessed using the social competence scale (SCS). Correlation results were as follows; the extent of memory, external memory triggers had a positive

relationship while internal loci memory triggers had an inverse relationship. The inverse correlation results indicated meant that memory of trauma influenced social competence.

5.2.5.2 Relationship between Memory of Trauma and Self-esteem (SE)

Participants scored on the self-esteem scale and majority had average self-esteem. Correlations results were as follows; external and internal loci memory triggers had an inverse relationship with Self Esteem. Extent of memory with Self Esteem had a positive relationship. All the correlations in Self Esteem were not statistically significant.

5.2.5.3 Relationship between Memory of Trauma and Somatization

Majority of the participants had mild somatization. Correlations were carried out and the following was observed: external triggers of memory had a significant positive relationship. Internal memory triggers had a strong positive relationship. Extent of memory had a positive significant relationship. Somatization had a significant positive relationship with external loci triggers of memory and extent of memory while internal memory triggers had a weak positive relationship. This indicated that as the memory of trauma increased the levels of somatization increased.

5.2.5.4 Relationship between Memory of Trauma and Dissociation

The participants reported different levels of dissociation. Majority had mild dissociation and moderate dissociation while none had severe dissociation. Correlations results showed the relationship between external and internal loci triggers of memory, extent of memory

and dissociation was positive. The internal loci memory triggers had a stronger positive relationship with dissociation indicating that as the memory of trauma triggers increased, dissociation increased because the suppressed memory is brought from the subconscious memory to the conscious.

The relationship between impacts of memory of trauma and the selected psychosocial constructs indicated a significant relationship, therefore impact of memory of trauma highly influences the participant's quality of life.

5.2.6 Mitigating the Effects of Memory of Trauma on Adolescents with Physical Disability

The sixth objective studied was mitigation of the influence of memory of trauma on adolescent with physical disability. This was done using statements from Focus group discussions. Most of the participants mentioned the persons who were significant in forming their support base as teachers, parents, caregivers and siblings. From the teacher counselors' interviews, screening of adolescent with physical disability for trauma, counseling, providing a safe and secure environment for adolescents with physical disability, support groups, management of psychosomatic symptoms and empowerment programs for parents were recommended for mitigation of influence of trauma memories. After considering several models, it was noted that effects of memory of trauma could be mitigated if individuals addressed the following areas after experience of trauma: physical, social, medical and psychological wellness of the adolescent with physical disability.

A multi-dimensional matrix for mitigation of effects of memory of trauma was developed. It included; medics, teachers, counselors, social workers, parents and other caregivers. This was to ensure that significant others and professionals who were involved in supporting adolescents with physical disability, were well trained and had dealt with their own memory of trauma. The care givers would be trained to understand trauma in their lives, resolve it so that they adequately support adolescents with physical disability who had experienced trauma. The proposed matrix may be developed into a model so as to benefit adolescent with physical disability by bringing on board specialists in various disciplines such as social workers, physiotherapist, nurses, occupational therapists, teachers, counselors or psychologists, religious leaders, and house parents providing social support, medical treatment, spiritual nourishment, education, counseling whose contribution would culminate into wholesome wellness of the adolescent with physical disability.

5.3 Conclusion

The study focused on the relationship between memory of trauma and psychobiosocial constructs. From the tests it was evident that there was a relationship between memory of trauma and the selected psychobiosocial constructs. Dissociation and somatization affected the psychological and biological domains that are a result of memory of trauma. The relationship between extent of memory and specific constructs was not significant in all except with dissociation. This means that it is not the amount magnitude of memory that is important but the impact of the memory. Memory of trauma imparts an emotional and or a behavioral scar that influences how the adolescents with physical disability interacted with their environment after the event. This forms a sensitive memory that if triggered would

release feelings that were experienced during the event. In effect, the impact of memory of trauma affects psychosocial constructs. The null hypothesis was rejected because there was either an inverse relationship or positive relationship between memory of trauma and the psychosocial constructs.

5.4 Recommendations

The following recommendations for policy were made:

1. The Ministry of Education needs to ensure that are screened for trauma at all developmental stages so as to identify events that may contribute to trauma so as to alleviate the possible damage that occurs with accumulation of unresolved memory of trauma. The screening may be done in schools and centers where mental health care is practiced. The school system could involve counselors or psychologists during the intake of the students to conduct screening or assessment, so as to help mitigate the effects of trauma. This would manage dissociation which highly affects relationships and the ability to concentrate on activities, studies and work therefore minimizing efficacy levels. The proper systems for identification, debriefing and mitigation of effect of memory of trauma should be put in place so as to manage the impact of memory of trauma.

2. All institutions of learning should have a resident counsellor. Adolescents with physical disability are susceptible trauma events which lead to memory of trauma. It is best to help them cope with memory of trauma and move on with quality life. The emphasis would be to enable them learn develop psychobiosocial constructs that would enable them have a

quality life through establishing efficient counseling programs run by professional counselors.

3. Development of a model that guide to mitigate memories of trauma and traumatic events among adolescent with physical disability. The government may need to go beyond disaster management and include strategies that may help heal trauma. Since adolescent with physical disability spend most of their time with teachers, it is proposed that teacher training programs integrate memory of trauma management as part of the courses, to facilitate the screening process for adolescent with physical disability who may not access psychological personnel.

4. The policy of inclusion learning that was launched in Kenya in May, 2018 (MOE 2018), provided for collaborative approach in managing learners with special needs. The implementation procedure needs to include issues of memory of trauma and management of the memory to ensure that the psychological needs of people who have experienced trauma have been met as they experience inclusion in the society.

Recommendation for Further Research

The following are some of the suggested areas for further research:

1. Prevalence of memory of trauma, its effect and management among adolescent with physical disability in Kenya. The current study proposed a matrix that may be researched on further to establish a model on how memory of trauma can be managed.

2. Management of triggers of memory of trauma among adolescent with physical disability to mitigate dissociation and social competence. Further research in this area may provide

knowledge to help Adolescent with physical disability overcome dissociation therefore face the memories so as to resolve the unprocessed thoughts and feelings.

3. Extent of memory of trauma and its relationship with the impact of trauma among the school going adolescents and its effect on their academic performance. While this study focused on the relationship between memory of trauma and impact of memory of trauma, there is need to explore whether academic performance is affected.

4. Development of assessment tools for memory of trauma and psychobiosocial constructs within the African context. This is research would help develop tools that are contextualized therefore effectively measure the constructs.

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Appendix I: Introduction Letter

My name is Evelyn Khazika Andolo, a postgraduate student at Kenyatta University, and I am undertaking a study on "Relationship between memory of trauma and selected psychobiosocial constructs among adolescents with physical disabilities Kiambu, Kenya." The study participants are randomly selected adolescents. Therefore, your participation is important since it will enable me to get data for the study, which may be used to make important decisions and avail more information regarding the area of memory of trauma and adolescents.

The questionnaires are attached to this transmittal letter. Your personal identity will be kept private and confidential. I am seeking your permission to involve you in this study as a resource person, if you agree sign in the consent form in the next page. You are also free to discontinue your participation in this research at any level, as you may want.

Yours faithfully

Evelyn Khazika Andolo Kathungu

Appendix 2: Acknowledgement of Research Proposal

KU/GS/ARRP/04/1

KENYATTA UNIVERSITY
GRADUATE SCHOOL

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

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

Internal Memo

FROM: **DEAN, GRADUATE SCHOOL** **DATE:** 4/12/14

TO: Name: Evelyn Khozika Andolo

Reg. No.: C82/11171/08

Department: Psychology

SUBJECT: ACKNOWLEDGEMENT OF RECEIPT OF RESEARCH PROPOSAL

This is to acknowledge receipt of your Research Proposal for your Masters/Ph.D Programme.

You will soon be informed of the Graduate School Board decision, once your Research Proposal is considered.

Thank You.

JOHN M. ODONGI
FOR: DEAN, GRADUATE SCHOOL

CC: Chairman, Department of: Psychology

JMO/fwk

Appendix 3: Research Authorization by Kenyatta University

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

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

Our Ref: C82/11171/2008

DATE: 14th December 2014

The Principal Secretary,
Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION EVELYN KHAZIKA ANDOLO– REG. NO. C82/11171/2008

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

Ms. Andolo intends to conduct research for a Ph.D Proposal entitled, **"Memory of Trauma and its Influence on Selected Psychosocial Behavours: A Study of Adolescents with Physical Disabilities (AWPD)".**
Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

RM/nn

Appendix 4: Research Authorization by NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:
28th January, 2015

NACOSTI/P/15/4156/4683

Evelyne Khazika Andolo
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Memory of Trauma and its influence of selected psychosocial behaviours: A study of adolescents with physical disability,"*** I am pleased to inform you that you have been authorized to undertake research in **Kiambu County** for a period ending **31st December, 2016.**

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

On completion of the research, you are required to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kiambu County.

The County Director of Education
Kiambu County.

Appendix 5: Research Permit by NACOSTI

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 4093

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MS. EVELYN KHAZIKA ANDOLO
of KENYATTA UNIVERSITY, 1908-1000 thika,has been permitted to conduct research in *Kiambu County*

on the topic: *MEMORY OF TRAUMA AND ITS INFLUENCE ON SELECTED PSYCHOSOCIAL BEHAVIORS:A STUDY OF ADOLESCENTS WITH PHYSICAL DISABILITY.*

for the period ending:
31st December,2016

Applicant's Signature

Permit No : NACOSTI/P/15/4156/4683
Date Of Issue : 28th January,2015
Fee Recieved :Ksh 2,000

Secretary
National Commission for Science, Technology & Innovation

Appendix 6: Statement of Informed Consent

I, whose signature appears below, confirm that I have been given the explanation of the nature of this study. I am aware that my name will not be recorded in this study in a way that can be used to identify me personally as the source of the information and that I can discontinue my participation in this study freely. I also understand that the information is for the purpose of study therefore, I freely choose to participate as a resource person.

Participant ……...…….. Date……

Appendix 7: Research Tools

Questionnaire

Instructions: Please answer all questions

Section A: Demographic information

1. How old are you? (Tick the correct age)

10 – 13 years	14 – 18 years	18 – 22 years	Other_____

2. What is your sex? (Tick the correct gender)

Male_____	Female_____

3. In what Form are you?

Form 1	Form 2	Form 3	Form 4

4. Who do you live with? (Tick and fill appropriately)

( ) Parents: Mother_____ age_____ occupation _____

Father _____age_____ occupation_____

( ) Children's home

( ) Foster Home

( ) Relatives

Section B

5. Tick as appropriate

Have you ever experienced any of the following bad or painful incidences?

Experience	**Yes**	**No**	**If yes, at what age did it happened**
Road accident			
Removal of an organ			
Removal of a limb			
Inability to perform activities of daily living			
Floods			
Earthquake			
Landslide			
Lost a loved one			
Been beaten unfairly			
Mistreated by: Parent Siblings Schoolmates Teachers Housemother			

Touched indecently or in a suggestive manner; Private parts Kissed Forced to have sex Forced to touch other person's private parts			
Exposed to verbal sexual pressure			
Abandoned by relatives when you needed them most			
Affected by the post - election violence			
Any other? Specify			

6. What makes you remember the experience above?

I was told by:

a) Parents ( )

b) I read from a diary or journal ( )

c) I had reported to the authorities after the incidence ( )

d) My Hospital documents report this ( )

Any other source? Please explain in the space below

_____

_____

7. How do you remember the incidence you showed in the table on Question 5? √ tick the most appropriate answer

a) I remember the whole incidence as it happened ( )

b) I remember the incident in parts ( )

c) I remembered the incidence later ( )

d) I remember some of the events and forgot others ( )

e) I remembered everything as it happened much later ( )

f) I know I went through the incidence but cannot remember its details ( )

10. When you experienced the bad or painful event (trauma indicator), tick the adjective best describes what happened to you.

	Strongly Agree	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
I felt that I could not help the situation					
I felt very sad					
I felt angry and frustrated					
I felt that I was not safe					
I should have been able to save the situation					
I thought that I was in control of the happening					
I was ashamed of my emotions and response					
I was worried of the safety					

other people					
I thought of other people					
I felt that I had lost control of my emotions					
I could not control my bowels and bladder					
I was very disturbed by what I saw					
I sweated, shook and my heart pounded fast					
I might have passed out					
I thought I might die					

Developed from DSM V: Indicators of Trauma (APA 2013)

8. In the table below rate yourself (tick the statement that applies to you- social competence).

Statements related to social competence	**Never**	**Rarely**	**Sometimes**	**Always**
I show respect to the people I interact with				
I get along with most people I interact with				
I try to understand other people's feelings				
I try to resolve conflicts when I experience them				

I argue too much				
I bully others around me				
I Disobey others				
People say I am stubborn				

Social competence scale (Author)

9. In the following scale, tick the relevant adjective (Impact of Trauma)

	Always	**Sometimes**	**Rarely**	**Never**
I feel afraid when I am left alone				
I am uncomfortable when with strangers of opposite sex				
I have dreams that remind me of the bad experience				
I remember the bad experience as if it is happening now				
I day dream as I remember the painful experiences				
I have nightmares				
I usually have disturbed nights				
I think about my past bad experience				
I can remember the painful experiences most of				

the time				
I do not care about whatever happens to me even if it hurts				
I forgot all the bad past experiences of my child hood				
I remember all the details of what happened to me				
I hate thinking about my future				
I think life has no meaning				
I can work towards a hopeful future				
I remember my painful past in bits				

11. The following sentences describe situations that might have happened to you. Indicate to what extent it might have happened

Statement of dissociation	**True**	**False**
I at times take a trip and find that I have no idea of what happened during the trip		
I at times find myself listening to someone talk and find that I did not hear all or part of what was said		
I at times find myself in places that I am not sure how I got there		
I at times do not know find myself dressed in clothes I do not remember putting on		

I at times find things in my belongings that I do not remember buying		
I at times meet people who claim they know me but I have not met them		
I at times feel that I am not myself or I am watching myself do things as though it is someone else		
Sometimes I do not remember relatives or family members		
Sometimes I do not have memories for important events in my life e.g. birthdays or some celebration		
Sometimes am accused of lying when I do not think I have lied		
Sometimes I do not recognize myself when I look into the mirror		
Sometimes I have experienced that other people and objects around me are not real		
At times I feel that my body does not belong to me		
I sometimes remember past events very clearly as if it is happening today		
Sometimes I am not sure of whether the things that happened to me are real or are dreams		
Sometimes I am in a familiar place but feel like it is a strange place		
At times when I am watching television or a movie, I become so carried away by the story such that I am not aware of events around me		
I sometimes daydream to an extent that it feels that it is actually happening to me		
At times I ignore pain		

I at times sit staring at the space and I am not aware of time passing		
I at times find myself talking loudly to myself		
I respond to situations very differently as if I am two people in one		
In some circumstances, I am not able to perform the duties I carry out very easily. E.g. sports, school work, interacting with friends		
Sometimes I cannot remember whether I have done something or whether I just thought about it (E.g. If you have done homework yet you only thought of doing it)		
I at times find evidence of doing things I have never done		
I sometimes find writings, drawings or notes that I do not remember writing or drawing		
I sometimes hear voices telling me what to do or talking to me		
I sometimes see as if people or objects appear unclear or far away		

Adapted from the DES (Carlos 1944)

12. In this area tick the physical discomfort you experience

How often do you go for medical assistance for this symptoms?	Always	Sometimes	Rarely	Never
What illness do you experience?				
Head ache				
High blood pressure				
Ulcers				

Stomach pains				
Chest pains				
Back pains				
Fainting				
Have you ever been unconscious				
Have you ever been blind in one eye or both for a brief period				
Any other Unexplained illness (please specify)				

Somatization Scale (Author)

14. Please tick the adjective that best describes you

	Statement	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
1	I feel am a person of worth ,at least on equal plane with others				
2	I feel I have a number of good qualities				
3	All in all I am inclined to feel that I am a failure				
4	I am able to do things well as most other people				
5	I feel I do not have much to be proud				

	of				
6	I take positive attitude towards myself				
7	On the whole ,I am satisfied with myself				
8	I wish I could have more respire for myself				
9	I certainly feel useless at times				
10	At times I think am no good				

Rosenberg Self-esteem Scale (Rosenberg, 1965)

Thank you for taking time to fill in this questionnaire.

Appendix 8: Focus Group Discussion Guide

1. What do you understand by the word trauma? (Triggers the meanings attached to the word
2. What types of trauma do you know of? (Explore the different sources of trauma as per how the students understand)
3. Do you think adolescents with disability experience trauma in any way? If yes, explain more of what trauma they are prone to, If no, explain what keeps them from experiencing trauma
4. Do you remember a traumatic experience that you went through? (Triggers the memory experienced)
5. How does the memory of trauma influence you? (Explore selected psychobiosocial constructs)
6. Have you ever experienced a situation whereby you are not in touch of yourself? (triggers the circumstances that led to the experience)
7. What do you understand the by term social competence? How does a person feel that they are fit in the society? How does one behave in the social setting, in a way that shows that they are affected by their past experiences of trauma? (Triggers issues such as self- esteem, self-concept, self-efficacy)
8. For those who have experienced trauma and can vividly remember, do you frequently have unexplained pains? (somatization)

9. What can be done to manage the relationship between memory of trauma and its effect on (your social esteem, social competence, health and ability to stay focused?)

INTERVIEW SCHEDULE FOR TEACHER COUNSELORS

1. How have the students you work with experienced trauma?

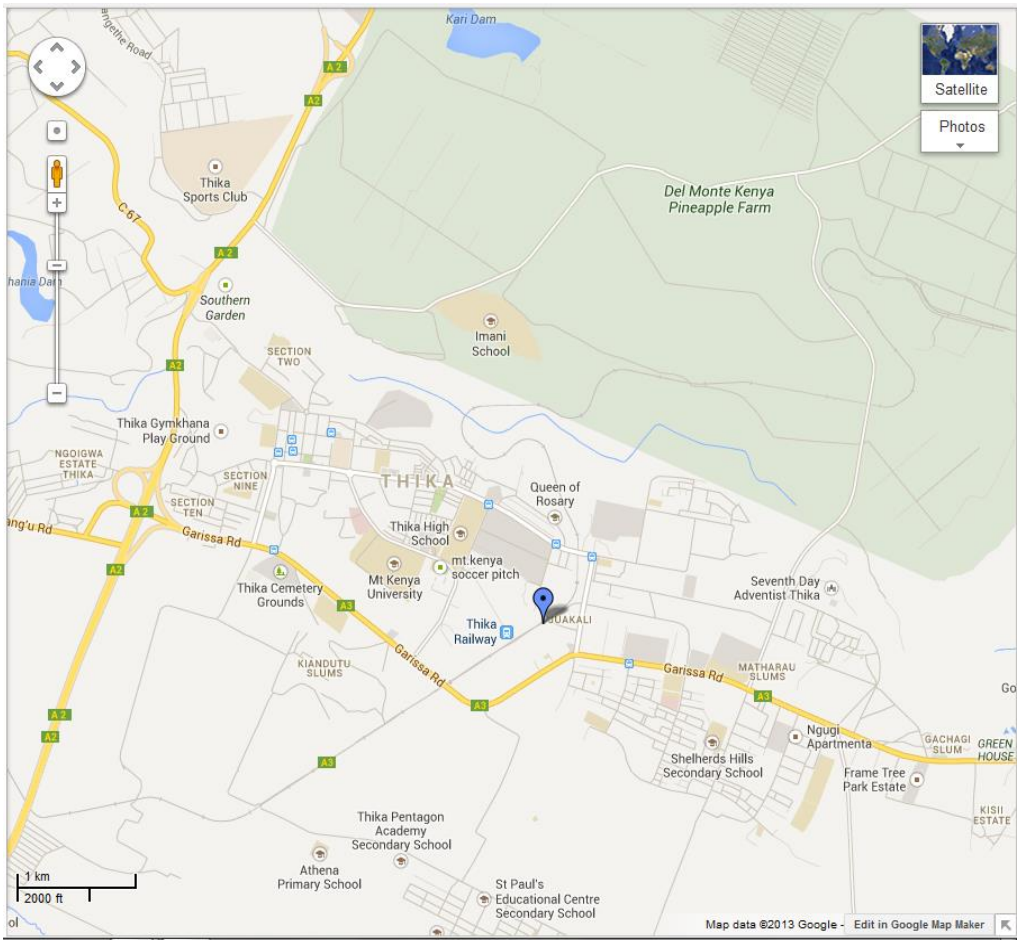
2. Mention the trauma experiences that the students have experienced

3. What causes the students to remember the trauma they experienced?

4. How does trauma influence psychobiosocial constructs: social competence, Self-esteem, Somatization, and Dissociation.

5. In your opinion, how can mitigation of the effect of memory of trauma on Adolescent with physical disability?

Appendix VII: A Map of Location of the study




Map
Satellite
Thika Pre-School Teachers College
School Pitch
Staff Quaters
Salvation Armyjoytown For The PH Primary School
Hope & Victory Church
Majengo Estate
Joytown Secondary School
Bahati Nursery School
Admin Block
Security Office
Thika Municipal County Centre
Bishop Njuguna Academy Primary School
Security Office
Mission Hospital
Joytown Primary School
ACK Church
Google
Map data ©2013 Google, Imagery ©2013 DigitalGlobe - Terms of Use

Appendix VIII

Pearson's Correlation of Self Esteem with Memory of Trauma

		ELMT	EMT	ILMT	Self Esteem
ELMT	Pearson Correlation	1	.144	.206*	-.062
	Sig. (2-tailed)		.104	.019	.485
	N	129	129	129	129
Extent of memory	Pearson Correlation	.144	1	.077	.056
	Sig. (2-tailed)	.104		.387	.529
	N	129	129	129	129
ILMT	Pearson Correlation	.206*	.077	1	-.157
	Sig. (2-tailed)	.019	.387		.076
	N	129	129	129	129
Self Esteem	Pearson Correlation	-.062	.056	-.157	1
	Sig. (2-tailed)	.485	.529	.076	
	N	129	129	129	129

Correlation of Memory of trauma and Social Competence (SC)

		SC	ILMT	EMT	ELMT
Social competence	Pearson Correlation	1	-.044	.044	.005
	Sig. (2-tailed)		.619	.619	.957
	N	129	129	129	129
ILMT	Pearson Correlation	-.044	1	.027	.165
	Sig. (2-tailed)	.619		.762	.061
	N	129	129	129	129
Extent of memory	Pearson Correlation	.044	.027	1	.140
	Sig. (2-tailed)	.619	.762		.113
	N	129	129	129	129
ELMT	Pearson Correlation	.005	.165	.140	1
	Sig. (2-tailed)	.957	.061	.113	
	N	129	129	129	129

Correlation of Memory and Somatization

		ELMT	Extent of memory	ILMT	Somatization
ELMT	Pearson Correlation	1	.144	.206*	.239**
	Sig. (2-tailed)		.104	.019	.006
	N	129	129	129	129
Extent of memory	Pearson Correlation	.144	1	.077	.155
	Sig. (2-tailed)	.104		.387	.080
	N	129	129	129	129
ILMT	Pearson Correlation	.206*	.077	1	.162
	Sig. (2-tailed)	.019	.387		.066
	N	129	129	129	129
Somatization	Pearson Correlation	.239**	.155	.162	1
	Sig. (2-tailed)	.006	.080	.066	
	N	129	129	129	129

Table 4. 1 Correlation of Memory of Trauma and Dissociation

		ELMT	EM	ILMT	Absorption	Derealisation	Amnesia	Dissociation
Memory trigger	Pearson Correlation	1	.144	.206*	.169	.128	.177*	.171
	Sig. (2-tailed)		.104	.019	.055	.148	.045	.052
	N	129	129	129	129	129	129	129
Extent of memory	Pearson Correlation	.144	1	.077	.059	.052	.129	.036
	Sig. (2-tailed)	.104		.387	.507	.555	.145	.686
	N	129	129	129	129	129	129	129
Intrinsic Trauma Impact	Pearson Correlation	.206*	.077	1	.248**	.064	.235**	.256**
	Sig. (2-tailed)	.019	.387		.005	.474	.007	.003
	N	129	129	129	129	129	129	129
Absorption factors	Pearson Correlation	.169	.059	.248**	1	.126	.507**	.677**
	Sig. (2-tailed)	.055	.507	.005		.155	.000	.000
	N	129	129	129	129	129	129	129
Derealisation factor	Pearson Correlation	.128	.052	.064	.126	1	.201*	.677**
	Sig. (2-tailed)	.148	.555	.474	.155		.023	.000
	N	129	129	129	129	129	129	129
Amnesia factor	Pearson Correlation	.177*	.129	.235**	.507**	.201*	1	.617**

	Sig. (2-tailed)	.045	.145	.007	.000	.023		.000
	N	129	129	129	129	129	129	129
Dissociation events scale	Pearson Correlation	.171	.036	.256*	.677**	.677**	.617**	1
	Sig. (2-tailed)	.052	.686	.003	.000	.000	.000	
	N	129	129	129	129	129	129	129

11. The following sentences describe situations that might have happened to you. Indicate to what extent it might have happened (DES)

Statement	True%	False%
I at times take a trip and find that I have no idea of what happened during the trip	34	75
I at times find myself listening to someone talk and find that I did not hear all or part of what was said	34.9	65.1
I at times find myself in places that I am not sure how I got there	20.2	79.8
I at times do not know find myself dressed in clothes I do not remember putting on	12.4	87.6
I at times find things in my belongings that I do not remember buying	24.8	75.2
I at times meet people who claim they know me but I have not met them	65.1	34.9
I at times feel that I am not myself or I am watching myself do things as though it is someone else	47.3	52.7
Sometimes I do not remember relatives or family members	29.5	70.5
Sometimes I do not have memories for important events in my life e.g.	37.2	62.8

birthdays or some celebration		
Sometimes am accused of lying when I do not think I have lied	48.1	51.9
Sometimes I do not recognize myself when I look into the mirror	27.9	72.1
Sometimes I have experienced that other people and objects around me are not real	24.0	76.0
At times I feel that my body does not belong to me	35.7	64.3
I sometimes remember past events very clearly as if it is happening today	65.9	34.1
Sometimes I am not sure of whether the things that happened to me are real or are dreams	57.4	42.6
Sometimes I am in a familiar place but feel like it is a strange place	48.8	51.2
At times when I am watching television or a movie, I become so carried away by the story such that I am not aware of events around me	47.3	52.7
I sometimes daydream to an extent that it feels that it is actually happening to me	45.7	54.3
At times I ignore pain	47.3	52.7
I at times sit staring at the space and I am not aware of time passing	46.5	53.5
I at times find myself talking loudly to myself	34.9	65.1
I respond to situations very differently as if I am two people in one	35.7	64.3
In some circumstances, I am not able to perform the duties I carry out very easily. E.g. sports, school work, interacting with friends	44.2	55.8
Sometimes I cannot remember whether I have done something or	44.2	55.8

whether I just thought about it (E.g. If they have done homework yet they only thought of doing it		
I at times find evidence of doing things I have never done	41.1	58.9
I sometimes find writings, drawings or notes that I do not remember writing or drawing	38.0	62.0
I sometimes hear voices telling me what to do or talking to me	31.0	69.0
I sometimes see as if people or objects appear unclear or far away		

Impact of trauma and psychosocial constructs

Pearson'sCorrelations

		Trauma Impact	Somatization	Self-esteem	Dissociation groups	Social competence
Trauma Impact	Pearson Correlation	1	.314**	-.259**	-.530**	-.157
	Sig. (2-tailed)		.000	.003	.000	.075
	N	129	129	129	129	129
Somatization	Pearson Correlation	.314**	1	-.237**	-.478**	-.124
	Sig. (2-tailed)	.000		.007	.000	.161
	N	129	129	129	129	129
Selfesteem	Pearson Correlation	-.259**	-.237**	1	.265**	.147
	Sig. (2-tailed)	.003	.007		.002	.097
	N	129	129	129	129	129
Dissociation groups	Pearson Correlation	-.530**	-.478**	.265**	1	.258**
	Sig. (2-tailed)	.000	.000	.002		.003
	N	129	129	129	129	129
Bahaviour	Pearson Correlation	-.157	-.124	.147	.258**	1
	Sig. (2-tailed)	.075	.161	.097	.003	
	N	129	129	129	129	129

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