PREVALENCE AND CORRELATES OF COMMON MENTAL DISORDERS AMONG INTERNALLY DISPLACED ADOLESCENTS AND NON-DISPLACED ADOLESCENT STUDENTS IN MOGADISHU, SOMALIA

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Declaration

I, YUSUF ABDIRISAK MOHAMED, hereby solemnly declare that to the best of my knowledge, this dissertation report is my original work and has not been submitted to any institution either partially or fully for any academic award expect where acknowledged with appropriate references.

Signature: …… Date: ……

Certification

We hereby certify that this research project was supervised by us:

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Yusuf Abdirisak Mohamed; MD

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Abbreviations & Acronyms

IDP	Internally Displaced Persons
PTSD	Post-traumatic Stress Disorder
RSES	Rosenberg Self-Esteem Scale
PHQ-9	Patient Health Questionnaire
<	Less than
≤	Less than or equal
≥	Greater than or equal

Abstract

Background: After over two decades of dispute in Somalia, there is still not yet political stability. There are ongoing terrorist attacks in Mogadishu, Somalia which continues to negatively affect the population. In addition, hundreds of thousands of people have been displaced with inadequate access to basic health care, education and social services. The children and adolescents in this environment are exposed to traumatic events and violence. This exposure is said to be associated with depression, post-traumatic stress disorder and a greater risk of substance use. There is no existing data on the prevalence or pattern of common mental disorders among adolescents in IDPs camps in Mogadishu, Somalia. The study aims to compare the prevalence and correlates of common mental disorders among adolescents in IDP camps with adolescents living in the community in Mogadishu, Somalia.

Methodology: A comparative cross sectional design was utilized for the study in four secondary schools and four IDP camps. Three hundred and twenty participants were recruited in the study (160 in-school living at home with parents and 160 in-IDP camp). The Multistage sampling technique was used to select the participants. Study instruments utilized were a socio-demographic questionnaire, Harvard Trauma Questionnaire, Rosenberg Self-Esteem Scale (RSES) and Patient Health Questionnaire (PHQ-9). Data were analyzed using the statistical package for social sciences version 24 (SPSS-24). Descriptive statistics such as proportions and percentages were used to present data. Chi-square were also used to test associations at $p<0.05$.

Results: The prevalence of common mental disorders was higher among adolescents living in IDP camps with 51.9% and 28.8% for depression and PTSD respectively as compared to adolescents

living in the community with their parents attending school with 28.8% and 8.8% for depression and PTSD respectively. The study found gender (p=0.026), age (p=0.034), perceived relationship with parents (p<0.0001) and exposure to traumatic events during childhood (p<0.0001) to be significantly associated with mental disorders. The study found a significant association between living in IDP camps (p<0.0001) and development of common mental disorders.

Conclusion: The prevalence of common mental disorders was higher among adolescents living in IDP camps than among adolescents living in the community with their parents. It also found that factors such as exposure to traumatic events were significantly associated with development of mental health problems among the adolescents.

Chapter One
Introduction

Background

After over two decades of dispute, there is still not yet political stability in Somalia. This has resulted in chaos, civil conflict, the destruction of local infrastructure, and a lack of regulation (Leeson, 2007; Menkhaus, 2007; Yalahow et al., 2017) and destruction public sector institutions, including formal educational institutions and hospitals, which has caused to the population without access to basic health care and education (Ahmed, 1999; Lindley, 2008). Multiple attempts have been made to reestablish a centrally functioning government since 1991 have been unsuccessful, including the health system with extremely constrained achievement (Ahmed et al., 2014) and economic infrastructure has collapsed as well as and hundreds of thousands of people have been displaced with inadequate access to health and social services (Dagne, 2009; WHO, 2010). Indicators of the collapse of the health system include child and maternal mortality rates being among the highest globally (Vijayaraghavan et al., 2012).

As a result, more than 1.5 million Somalis have fled the country and an estimated two million have been displaced internally, due to war and famine (Bradbury, 2010; Kassim, I., 2010). South and Central Somalia currently has one of the largest internally displaced populations in the world. More than 1 million people were displaced in 2017, including over 700,000 children and the problem was exacerbated by forced evictions from camps for internally displaced persons (IDPs) in and around Mogadishu along a 15-kilometer stretch of road between Mogadishu and Afgooye. Most IDPs in the Central and Southern Zones in Somalia are living in overpopulated camps with

limited access to water, food and adequate sanitation services (UNICEF 2017; Cannington Community College, 2017).

Schiff, Pat-Horenczyk, *et al.*, (2012) reported that millions of children under the age of eighteen years have been affected by exposure to civil wars, terrorist attacks, and internal conflicts, all of which have significant impact on their mental health and wellbeing. The traumatic exposure differs from witnessing a car accident, experiencing the death of a loved person, natural disaster or other serious life-threatening incidents. Exposure of children and adolescents to traumatic events may cause them distress which may interfere with their daily life activities (Baetens et al., 2015). This can lead to mental health consequences including depression, post-traumatic stress disorder, behavioral problems, learning and attention difficulties, and suicide (Burnett-Zeigler et al., 2012; Olema et al., 2014).

Olema et al. (2014), also found that depression among adolescents as well affects their feelings, behaviors, and performance. It causes impairment in social, academic, interpersonal functioning as well as the well-being (Berger et al., 2012; Pietsch et al., 2011) (Olema et al., 2014). It is been discovered that children and young people suffer from mental health problems so much that they not only affect their daily life activities but if left untreated causes disability (Membride, 2016).

Post-traumatic stress disorder (PTSD) is a well-known mental disorder. Studies have shown that multiple exposures to a variety of different types of traumatic events can directly increase the risk of psychological distress, especially for those exposed to more extreme violence and it may continue to suffer even in the post-conflict years (McMullen et al., 2012). A study

conducted among adolescents from Gaza Strip and South Lebanon found that religiosity and ideology did not explain a similar disparity in response to stress among them, while higher levels of religiosity indicate higher levels of depression and anxiety among adolescents from Gaza. Thus, there is a need to differentiate the psychosocial problems of adolescents and the factors that may differentiate successfully from unsuccessful adaptation in order to set methods for culturally sensitive models of assessment, prevention, and intervention (Khamis, 2012).

Self-esteem has also been identified to be an associated factor in the development of mental health problems among adolescents. An individual's self-esteem is their subjective appraisal of self as intrinsically positive or negative and can have significant implications for psychological functioning. The level of self-esteem varies from time to time depending on the context live in as well as parenting styles. It has been found that self-esteem development among children starts early age of developing self-concept and stable until adulthood. There is evidence that adolescents with low self-esteem deal with life events quite differently from those with higher self-esteem (Crisp and Turner, 2014).

Justification and relevance of the study

Exposure of children and adolescent to traumatic events and involvement in violence is associated with depression and PTSD with a greater risk of substance use (Schiff et al., 2012c). However, exposure to war events had similar effects on both immigrant and non-immigrant students (Schiff et al., 2012c). Adolescent students were more vulnerable population in the conflict areas especially among young people who have experienced childhood trauma and extreme

vulnerability to war-related stress. Adolescents exposed to childhood trauma events such as abuse, witnessed the murder of family or death of friends or accidents are probably going to encounter more mental health problems (Schiff et al., 2012c) (Feyera et al., 2015). Exposure to terrorist attacks, wars and political violence by adolescents is associated with greater psychological distress (Schiff et al., 2012c).

In spite of the well-established associations between conflicts and mental health problems, there is no existing data on the prevalence or pattern of common mental disorders among adolescents in IDPs camps in Mogadishu, Somalia. Therefore, there is the need to undertake research to investigate the prevalence and correlates of common mental disorders among internally displaced adolescents to gather relevant information towards planning the necessary interventions. This study, therefore, aimed to step into this gap in knowledge among adolescent IDPs in Mogadishu, Somalia.

Upon the completion of this study, it is hoped that the findings will be shared with the Ministry of Health, the Ministry of Higher Education of Somalia, policymakers and other stakeholders. The study results will be useful in designing mental health interventions to enhance the mental health status of adolescents in IDP camps. Furthermore, since Somalia has had limited research in the last two decades, it is hoped that the findings of this study will be used as a basis for future research. The study will provide evidence-based knowledge about the mental health situation of IDPs as well as adolescents in secondary schools in Mogadishu.

Aim

This study aimed to compare the prevalence and correlates of common mental disorders among adolescents in IDP camps with adolescents living in the community in Mogadishu, Somalia.

Specific objectives

1. To determine the prevalence of common mental disorders (Depression and PTSD) between adolescents in IDP camps and adolescents living in the community.
2. To determine the association between exposure to traumatic events and common mental disorders (Depression and PTSD) between adolescents in IDP camps and adolescents living in the community.
3. To determine the association between sociodemographic variables and common mental disorders (Depression and PTSD) between adolescents in IDP camps and adolescents living in the community.
4. To evaluate the self-esteem profiles of adolescents in IDP camps and adolescents living in the community.

Primary outcome measures

The primary outcome is depression, PTSD as well as self-esteem profile.

Chapter Two
Literature Review

Adolescence

Adolescence is the part of life that extends between childhood and adulthood. (Sawyer et al., 2018). Many developmental changes occur during the adolescent period; with changes related to puberty, brain structures, cognitive-emotional functioning, as well as family and peer relationships (Windle et al., 2008). Particularly, about 50% of adult mental disorders have their onset before the age of 15 years. Thus, the period of the adolescent is a vulnerable period (Sawyer et al., 2018).

Mental health problems of adolescents

Adolescence is a dynamic period of learning and adaptation and offers unique opportunities in which adolescents seek to become an independent adult. It is estimated that 10 percent of children and young people suffer from mental health problems so much that they not only affect their daily life activities but if left untreated, they will continue to adulthood (Membride, 2016). Among adolescent girls, anxiety disorders are the most common condition followed by mood disorders especially depression, resulting in significant impairment. (Black and Rofey, 2018).

Adolescents exposed to traumatic events such as the death of loved one, physical and sexual abuse and other life-changing events are associated with increased risk of mental health problems. Exposure to trauma before adulthood is associated with a wide variety of psychopathologies, such as depression, anxiety, and post-traumatic stress disorder, behavioral problems and poor school performance functioning (Omigbodun et al., 2008).

Adolescents and refugees in conflict-affected areas have high levels of post-traumatic stress disorder (PTSD), depression and anxiety (Attanayake et al., 2009). A study conducted in Georgia has shown evidence of comorbidity of mental health disorders such as posttraumatic stress disorder (PTSD), depression, anxiety, and disability among the conflict-affected, particularly internally displaced persons and returnees (Makhashvili et al., 2014). Although studies show mental health issues related to forced displacement in conflict-affected refugee and IDP populations,, limited evidence, however, exists on the impact of prolonged internal displacement (Siriwardhana et al., 2013).

The prevalence of mental health disorder in the IDP population in Central Sudan was 52.9%. Which the most common was a major depressive disorder, generalized anxiety disorder, and post-traumatic stress disorder. Years of displacement and education were also associated with different mental disorders (Salah et al., 2013). A study conducted in primary and secondary schools among child and adolescent survivors after natural disaster in China also showed high prevalence rates of mental disorders with probable posttraumatic stress disorder (PTSD) (Zhang et al., 2015). Exposure to child physical abuse was associated with higher levels of PTS symptoms, substance use and involvement in school violence. (Schiff et al., 2012b)

About ten percent of children and adolescents have a mental disorder, while three out of twenty-five adolescents in a secondary school in the UK experiences a recognizable mental health problem (Giacaman et al., 2011a). The prevalence of mental disorders among amongst school-going adolescents in the Arab particularly Omani students had 25% (Al-Adawi et al., 2009), Whereas, Jaju et al., (2009) reported study on the same population showed 13.9% of the

participants had at least one mental health diagnosis within one year while the lifetime prevalence of major depression was 3% followed by specific phobia 5.8%, and females were found to be of higher risk in the study. A study among adolescents in a secondary school in South Western Nigeria reported 40% of the participants experienced traumatic events and the prevalence of PTSD was 2.4% (Gureje et al., 2011), While Oladeji et al., (2011) found the experienced traumatic events among adolescents in a secondary school in South Western Nigeria identified the death of a family member or friend, being a victim or witness of a violent crime and sexual abuse. McMullen et al., (2012) reported on a study conducted in northern Uganda among adolescents in boarding schools found that the prevalence of depression was 80% followed PTSD had 57% with higher risk to be associated those who had witnessed several trauma exposures such as violent killing and losing a family member

Adolescent Depression

Depression is a common mental illness that negatively affects an individual's feelings, thoughts and behavior. Depression causes feelings of sadness and/or a loss of interest in activities once enjoyed, spanning at least two weeks. The symptomatic presentation between adults and adolescents are same. It can lead to a variety of emotional and physical problems and can decrease a person's ability to function normally (American Psychiatric Association, 2013). Depression is a serious public health problem which also affects academic performance and living conditions. (Adewuya, Ola and Afolabi, 2006).

The prevalence of depression among older adolescents in a rural area in South Africa was 9.7% as well as ninety percent of the participants had total function impairment. Also, reported

being female and increased age were associated factors with depression (Tomlinson et al., 2009). Other reported factors associated with depression apart from the female gender, were a family history of mental illness, negative coping style, and stress (Kinyanda et al., 2011).

Studies have demonstrated the most common mental health outcome of exposure to war-related traumatic stressors is depression (Feyera et al., 2015). A study which was conducted in Kaduna, Nigeria among the IDPs, found a 59.7% and 16.3% prevalence of probable depression and definite depression respectively (Sheikh et al., 2015). Similarly, a 67% prevalence of depression was reported amongst internally displaced persons in northern Uganda (Roberts et al., 2008a). The prevalence of depression among Somali refugees at Melkadida camp, Ethiopia was pegged at 38.3 % (Feyera *et al.*, 2015). Studies conducted among IDPs in South Darfur and Central Sudan found depression (13.5% and 24.3% respectively) to be the commonest mental disorder (Elhabiby et al., 2015a; Salah et al., 2013). In Nepal, found most patients attending primary care services have depression significantly were 16.8% (Luitel et al., 2018). A higher rates of depressive episodes have been documented to Mexican immigrants in US (Cabrera-Nguyen, 2014). A retrospective study showed that the prevalence of depression after the war among Syrian refugees was 43.9% whereas, the prevalence of depression for pre-war was 6.5% (Naja et al., 2016).

The presence of adverse life events has been found to be a consistent risk factor for the development of depressive symptoms in both genders (Wang et al., 2012). It has been found that females who live in an urban area have a higher risk of developing depression in the adolescent period (Morof et al., 2014). The reasons are that females experience more negative life events and are more frustrated by negative life events such as conflicts with peers (David A Cole et al., 2006).

Other risk factors are a family history of depression, those without family support or confiding relationships, academic failure, and use of substances (David A. Cole et al., 2006; Windle et al., 2008).

Clinical depression has an effect on adjustment during adolescence, (for example poor peer relationships, substance use). Additionally, the effects last well into adulthood, as evidence indicates that depression is associated with poorer educational outcomes, recurrent unemployment, and early parenthood (Adeniyi et al., 2011). These effects were equally likely for males and females. Other negative outcomes of depression in adolescents include; substance abuse, cigarette smoking, high-risk sexual behavior, physical health problems, impaired social relationships, and a 30-fold increased risk of completed suicide (Adeniyi et al., 2011; Kaplow et al., 2014).

Adolescents Post-traumatic stress disorder

Post-traumatic stress disorder (PTSD) is a consequence of experiencing a traumatic event and can include symptoms of hyperarousal, avoidance and re-experiencing events (Reavell and Fazil, 2017). PTSD symptoms according to the DSM-5 includes recurrent intrusive distressing memories, persistent avoidance of the stimuli, flashbacks, negative changes in thinking and mood, and changes in physical and emotional reactions. These symptoms usually persist for a month, with associated significant distress or impairment in general functioning (American Psychiatric Association, 2013).

Post-traumatic stress disorder risk factors are similar to those of depression and anxiety (American Psychiatric Association, 2013). These factors include the age of trauma, war experience, predisposing factors at the individual level, psychological and social functioning of

parents and natural disasters (Alcántara et al., 2013). While there are other factors are uniquely associated with PTSD which includes sex, social status, a distance of displacement, ill health without medical care, rape or sexual abuse, food or water shortages, and high levels of trauma. (Roberts et al., 2008b)

A systematic review in western countries revealed that the prevalence of post-traumatic stress disorder is 11% among 260 refugee children sampled (Fazel et al., 2005). Similarly, they found a higher incidence of PTSD in refugee minors and there was correlation with increased exposure to violence in the developed countries (Reavell and Fazil, 2017). A study conducted among internally displaced persons (IDPs) in South Darfur has been found that the most frequently reported was post-traumatic stress disorder (PTSD) was 14.9% (Elhabiby et al., 2015b). Salah et al., 2013 have been found similar results in two settlements in Central Sudan that post-traumatic stress disorder was 12.3%. A comparative study of post-traumatic stress symptoms in between Kenyan adolescents and South African adolescent schools have been found that had much lower rates of PTSD 5% vs 22.2% (Seedat et al., 2004). Sheikh et al., 2016 reported a lower rate of 4.1 % had probable PTSD while 2.7% had definitive PTSD among internally displaced children and adolescents living in a camp for due to post-election violent conflict. This lower prevalence rate suggested that due to the children and adolescents are living with their parents in the camp, as well as they had been provided psychosocial interventions

About 37.1% of secondary school students in Baghdad, Iraq were found to suffer from PTSD and they also had bad school achievement although there is no significant association was found between age and gender. There were no gender differences with regards to PTSD (Reavell and Fazil, 2017). Studies have also shown that adolescents who develop PTSD after trauma often tend to participate in risky behaviors such as substance use, suicidal behavior, and aggression. (Okello et al., 2013). Impact of the traumatic events on adolescents might be severe, as their

perception and understanding of events differ and might also shatter their sense of safety and security (Giacaman et al., 2011b)

A study conducted among refugees in Nakivale resettlement camp, Uganda that has been discovered that resilience and posttraumatic growth conferred protection against PTSD among the refugees (Ssenyonga et al., 2013). A comparative study conducted of four communities after seven years of continuous rocket fire in southern Israel has been found as protective factors for PTSD which is increased community solidarity, sense of belonging and confidence in authorities, despite the chronic attacks to which they were exposed (Gelkopf et al., 2012). It has been noted a lower level of PTSD of a sample of refugee adolescents in the US in those who had greater school belonging (Kia-Keating and Ellis, 2007).

Self-esteem

Self-esteem is defined as a reflection of one's own self-worth and beliefs, as well as an emotional response to those beliefs (McClure et al., 2010). The reported risk factors for low self-esteem include reduced self-esteem, being female, low socioeconomic status, a single mother, the need for special health care, school violence, parental aggravation or family stress (Martinez and Garcia, 2008; McClure et al., 2010). The protective factors for low self-esteem include physical activity, older age, being healthy, parental education and family income, perceived teacher support, higher school achievement and feeling safe in school (Akdemir et al., 2016).

Low self-esteem has been found to be associated with depression, anxiety, suicidal behavior, non-suicidal self-injurious behavior, eating disorders, violent behavior, and substance

use (Akdemir et al., 2016; Bos et al., 2010; McClure et al., 2010). Also, the results showed that self-esteem was significantly lower in females adolescents without siblings, those are living in non-nuclear families, history of suicide attempt, and among those with a history of a non-suicidal self-injurious behavior (Akdemir et al., 2016; Moksnes et al., 2010). An explanation that had been given to this gender difference is the fact that females tend to be exposed to increased stress than males during adolescence due to peer, romantic and family relationships (Moksnes et al., 2010).

A significant association been found between increasing stress related to peer pressure, home life, school performance and adult responsibility and higher levels of emotional states. Consequently, a strong inverse association has been established between self-esteem and emotional states (Moksnes et al., 2010). Better coping strategies were also found to be higher in those with good self-esteem, further signifying the need to determine the role self-esteem play in functioning of adolescents (Moksnes et al., 2010).

Relevance of study to Child and Adolescent mental health in Somalia and East Africa

This study aimed to find out the association between exposure to trauma events, and depression, PTSD as well as its association with self-esteem among adolescents in IDP camps and those attending secondary school adolescents in Mogadishu, Somalia.

Given the increasing number of internally displaced children and adolescents in Mogadishu, as well as lack of existing data on the prevalence or pattern of common mental disorders among adolescents in IDPs camps, this study hopes to provide information about the prevalence and correlates of common mental disorders among internally displaced adolescents to gather relevant

information towards planning the necessary interventions

It is hoped that the findings of this study would be shared with the Ministry of Health, the Ministry of Higher Education of Somalia, policy makers and other stakeholders, who will subsequently effect the needed interventions.

Chapter Three
Methodology

3.1 Study location

This study was conducted in Mogadishu known locally as Hamar, located in the coastal Banaadir region on the Indian Ocean. Mogadishu is the capital and most populous city of Somalia, with a population of 2,425,000 residents, with the urban area occupying 91 square kilometers (or 35 sq. mi) (The Demographia, 2018). The city is administratively divided into 17 districts.

3.2 Study design

This was a comparative cross-sectional study.

3.3 Study population

The study population consisted of adolescents living in IDP camps and students living within the community and attending secondary schools in Mogadishu, Somalia.

3.3.1 Inclusion Criteria

For the IDP camp group:

i. Adolescents between the ages of 10 – 19 years of both gender
ii. Adolescents who currently living in the IDP camps.

For the community sample:

i. Adolescents between the ages of 10 – 19 years of both gender
ii. Adolescents who currently living at home with parents/ caregivers and attending secondary school in Mogadishu, Somalia

3.3.2 Exclusion Criteria

i. Adolescents who declined to participate

ii. Adolescents who were too ill to participate

3.4 Sample size calculation

A systematic review has been reported that mental disorders among children and adolescents which exposed to war and during post-conflict reported PTSD as the primary outcome (Attanayake et al., 2009). Thus, a study conducted on Kenyan adolescents in schools has been found that post-traumatic stress disorders with 5% was utilized for the sample size calculation (Seedat et al., 2004).

The minimum sample size required to detect a difference of 10% in the prevalence of PTSD between adolescent secondary school students and those in IDP camps in Mogadishu is given by the formula.

$$n = \frac{(Z_{\alpha} + Z_{1-\beta})^2 [p_1 (1- p_1) + p_2 (1- p_2)]}{(p_1- p_2)^2}$$

Where Z_{α} = standard normal deviate corresponding to 5% level of significance = 1.96

$Z_{1-\beta}$ = standard normal deviate corresponding to a power of 80% = 0.84

p_1 = the prevalence rates of PTSD symptoms on adolescent in Nairobi public secondary schools = 5%

$p_1- p_2$ = smallest difference between the two study groups that the study hopes to detect = 10%

p_2 = the prevalence of PTSD among adolescents living in IDP camps in Mogadishu = = 5% + 10% = 15%

n = minimum sample size in the two groups

$$n = \frac{(1.96+ 0.84)^2 [0.05(1-0.05)+ 0.15(1-0.15)]}{(0.1)^2}$$

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However, to allow for a non-response rate of 10%, the sample size was increased to

137/ (100-10) %

n= 152 in each group, approximately to **160** as a minimum sample size

3.5 Sampling technique

A multistage sampling method was used to select adolescents in order to be enrolled in the study (adolescent from IDP Camps and secondary schools).

3.5.1 IDP Camps

Multistage probability sampling was used to select 864 households. The sample size was distributed to each camp by proportional allocation.

Stage I: 4 IDP camps were selected by simple random sampling from the sample frame of the list IDP camps located in Mogadishu, Somalia

Stage II: Then individual households in the IDP camp were selected using a systematic sampling technique after identifying an initial starting household by use of a random number. The sampling frame was the list of household number which was obtained from camp administration. For example, in IDP camp 1 had 80 Households, number of households selected were derived by 80 / 864 X 160 =15, By this interval was calculated using a sampling interval of 5 i.e. 80 / 15, every fifth household was selected thereafter. Adolescent in the selected household was further selected

and interviewed. In the case of more than one eligible participants in the household, balloting method was used to select only one.

3.5.2 Secondary schools

A multi-stage sampling was carried out to select the total number of participants. A sampling frame of all the secondary schools in the Mogadishu capital city was developed based on a list of schools obtained from the Ministry of Education, Culture and Higher Education.

Stage I: The Mogadishu city was purposively selected

Stage II: All the schools in the city were selected

Stage III: 4 schools were selected by simple random sampling from the sample frame of the list schools in Mogadishu, Somalia.

Stage IV: Proportionate sampling was used to select participants in each school based on the total number of students enrolled. For example, if school 1 had 250 secondary students, number of participants selected were derived by: 250 / 1,590 X 160 = 25. Therefore, 25 students were selected from that school.

Stage V: Students from each school were selected by systematic random sampling until the required number of the students was reached in each school. The secondary classes in the school were selected randomly. Students in selected classes were also selected randomly using their ID numbers arranged alphabetically in the register for each class. The class registers in each school were used to collate all the secondary students to form a sampling frame. The first was randomly selected among the ten students in the list and using a sampling interval of 10 i.e. 250 / 25, every tenth student was selected thereafter.

3.6 Study Instruments

The following study instruments were utilized for this study.

i. Socio-demographic questionnaire
ii. Patient Health Questionnaire (PHQ)
iii. Harvard Trauma Questionnaire (HTQ)
iv. Rosenberg Self-esteem Scale (RSES)

3.6.1 Patient Health Questionnaire (PHQ-9)

This is an instrument for formulating criteria-based diagnoses of depressive disorder. It is a self-administered questionnaire for diagnosis, screening, and measuring of depression severity (Kroenke et al., 2001). The PHQ-9 is a 9-item questionnaire according to the criteria from the Diagnostic and Statistical Manual for Mental Disorders (DSM-IV) to detect major depressive disorders (Gelaye et al., 2013). Patient Health Questionnaire (PHQ-9) has been shown to have good internal consistency (0.85) and validity in a study conducted among Nigerian students, assessing depression (Adewuya et al., 2006). A similar study conducted in southeast Ethiopia on the prevalence of depression among Somali refugees at Melkadida camp was measured by using PHQ-9, the instrument was validated and translated in Somali language. (Feyera et al., 2015).

3.6.2 Harvard Trauma Questionnaire (HTQ)

This is a self-report symptom questionnaire that was developed by Mollica et al in 1992. It is an extensively used scale with very good results in different population groups (Steel et al., 2011). It measures exposure to range of violence experiences and post-traumatic stress symptoms across

refugee populations (Ayazi et al., 2013). It is an instrument commonly used for evaluating the effect of traumatic exposure among refugees and displaced persons (Sigvardsdotter et al., 2016). The Internal reliability estimated at 0.84 and 0.82 (Ayazi et al., 2013). It consists of a 16-item, self-report measure developed as a cross-culturally valid instrument and measures symptoms of posttraumatic stress disorder (PTSD) (Sigvardsdotter et al., 2016).

3.6.3 Rosenberg Self-esteem Scale (RSES)

The Rosenberg SES is the one of the most widely used instruments for global self-esteem and it is ideal for adolescents (Bagley, 1997). It is a ten-item scale that measures global self-worth by measuring both positive and negative feeling about the self. All items are answered using a 4 point Likert scale format ranging from strongly agree to strongly disagree. The RES was used to assess self-esteem among participants. Sample of the items in the RES include ‘I feel I have a number of good qualities' and ‘I feel I do not have much to be proud of'. In the RES items (2,5,6,8,9) are reverse scored.

3.6.4 Demographic and psychosocial questionnaire

A socio-demographic questionnaire was designed to collect relevant information about the respondents that correspond to variables that are associated with exposure to trauma, their present living condition and risk factors for common mental disorders. It has two parts, with the first part obtaining information about age, gender, address, and family. Others are the family background of the students, including family type, family size, and relationship with family members. The second part is the information about exposure to traumatic events in the past, its nature and

duration, how it affects the participant, previous coping styles, family history of mental illness, and history of abuse and use of substances.

3.7 Ethical considerations

Permission and approval for the research obtained from the Ministry of Health and Human Services, Somali Federal Republic.

The study objectives were explained to teachers, parents/caregivers and participants before the distribution of consent forms. My contact details were provided in case further explanation is needed. The participants were guaranteed confidentiality of their responses as well as the voluntary nature of the research and their rights to withdraw at any time.

3.8 Study Procedure

Pre-test of the Questionnaire and study instruments

A pre-test was conducted in a randomly chosen secondary school and camps after excluding schools and camps for the main study. The purpose of the pre-test was to assess the appropriateness and feasibility of the tools, to identify any difficulties the adolescents may encounter with using tools and to approximate the time it took to respond to questionnaires.

The Questionnaire and study instruments were pretested among 4 secondary schools and 4 IDP camps in Mogadishu, Somalia. Participants selected for the pre-test were purposively selected to include a range of participants who were within age groups, gender, and different socioeconomic

background. Also, the same interviewer for the study was used for the pre-test. Some of the comments were: “What do you mean this question”; “Can I tick one or all”; “the questions are too much”.

The outcome of the pre-test:

Average time-frame for administering of questionnaires were determined. Some questions were reframed for a better understanding. Some question option was removed to reduce religious sensitivity. Most of the IDP participants were unable to write self-administered questionnaires. Thus, the interviewer should be read out to the IDP camp participants and tick the responses of the participant. The pre-test highlighted the areas that required a more in-depth training of the research assistants.

The study was conducted in two stages. Adolescents who assented to participate and met the requirement of the inclusion criteria answered the self- report questionnaires. The questionnaires were administered in a different room without teachers or parents— for those in camps. The questionnaires were translated and back-translated into the Somali language by two different linguists; the initial instrument was translated into the Somali language by a linguist while an independent linguist back-translated the Somali version into English language. The back-translated version and the original English version were compared for consistency.

Participants were assessed in the school halls or in the tent of the IDP participants that provided enough space for each person to tick without the person next to him/her know the options that have

been selected. Participants were given permission to ask for further clarification. Any difficulty questions or not well understood was further explained. It was also necessary to ensure that the research was conducted during their school break time (09:00-09:30am). Chocolate/sweets refreshment and writing materials (pencils and sharpeners) were provided.

3.9 Data Management and analysis

The data collected were entered and analyzed with the Statistical Package for Social Sciences, version 24.0 software. The results were presented using descriptive statistics. Summary statistics such as frequencies and percentages were presented. Chi-square tests was used to compared the prevalence of common mental disorders (Depression and PTSD) among the groups. The associations between exposure to traumatic experiences, socio-demographic variables and common mental disorders (Depression and PTSD) among the groups as well as the comparison of the self-esteem profile among the groups. All analyses were carried out at 5% level of significance.

Chapter Four
Results

A total of 320 adolescents were recruited for the study. Half of the respondents (160) were in-school adolescents living with their families at home while the other half (160) were adolescents living in the internally displaced persons' camps (IDPs). Findings from this study are presented under the following headings

- Socio-demographic characteristics of participants

- Comparison of the prevalence of common mental health disorders (depression, post-traumatic stress disorder) among in-school adolescents and those in IDP camps.
- Association between exposure to traumatic events and common mental health disorders (depression, post-traumatic stress disorder) among in-school adolescents and those in IDP camps.
- Strategies for coping with trauma
- Comparison of the self-esteem profiles of in-school adolescents and those in IDP camps.

4.1 Socio-demographic variables

The study population was made up of a total of 181 Males (56.6 %) and 139 females (43.4%). Hundred and seven (107) out of 181 (66.9%) males were living in IDP camps compared to 86 out of 139 (53.8%) females who were living in home. Participants were aged 10 to 19 years (mean= 15.5 years; median= 16 years. Eighty-six (86) out of 90 (53.8%) younger adolescents were living in IDP camps compared to 74 out of 230 (46.3%) older adolescents who were living in IDP camps. Twenty-eight (28) out of 81 (18.1%) participants who reported having a family history of mental illness were living at home compared with 53 out of 234 (33.1%) participants who were living in IDP camps. See table 4.1 below for details.

Table: 4.1 - Socio-demographic variables

Socio-demographic factors	At Home N=160 n (%)	On IDP Camps N=160 n (%)	X^2	p
Gender				
Male	74(46.3%)	107(66.9%)	13.851	**<0.0001***
Female	86(53.8%)	53(33.1%)		
Total	160(100%)	160(100%)		
Age (years)				
Younger Adolescent (10-14)	4(2.5%)	86(53.8%)	103.946	**<0.0001***
Older Adolescent (15-19)	156(97.5%)	74(46.3%)		
Total	160(100%)	160(100%)		
Family Type				
Monogamous	108(67.5%)	121(75.6%)	2.595	0.107
Polygamous	52(32.5%)	39(24.4%)		
Total	160(100%)	160(100%)		
Family Size				
Small(≤7members)	59(36.9%)	49(30.6%)	1.398	0.237
Large(>7members)	101(63.1%)	111(69.4%)		
Total	160(100%)	160(100%)		
Living with the parents				
Yes	152(95%)	153(95.6%)	0.070	0.791
No	8(5%)	7(4.4%)		
Total	160(100%)	160(100%)		
Relationship with parents				
Cordial	148(92.5%)	131(81.9%)	9.194	**0.010***
Non-Cordial	12(7.5%)	26(16.3%)		
Conflict	0(%)	3(1.9%)		
Total	160(100%)	160(100%)		
Perceived family support				
Supportive	137(85.6%)	155(96.9%)	12.681	**0.0001***
Non-Supportive	23(14.4%)	5(3.1%)		
Total	160(100%)	160(100%)		
Childhood Trauma experiences				
Yes	21(13.5%)	37(23.1%)	4.806	**0.028***
No	134(86.5%)	123(76.9%)		
Total	155(100%)	160(100%)		
Family history of mental illness				
Yes	28(18.1%)	53(33.1%)	9.348	**0.002***
No	127(81.9%)	107(66.9%)		
Total	155(100%)	160(100%)		
Use of any psychoactive substance				
Yes	1(0.6%)	3(1.9%)	0.975	0.323
No	156(99.4%)	157(98.1%)		
Total	157(100%)	160(100%)		

*Significant at $p<0.05$

N<160 indicates missing data

4.1.1 Exposure to Traumatic Experiences and coping skills

Table 4.2a below shows that 82 out of 159 (51.6%) respondents living at home had experienced or witnessed evacuation from town, compared to 152 out of 160 (95%) respondents living in IDP camps. This association was statistically significant (X^2=76.950; p= <0.001). Also, 108 out of 160 (67.5%) respondents living at home had experienced trauma in the past year, compared to 122 out of 160 (76.3%) respondents living in IDP camps had experienced trauma in the past one year. This association was, however, not statistically significant (X^2=3.030; p= 0.082). Fifty-two out of 156 (33.3%) respondents living at home had heard bomb blasts, compared to 88 out of 160 (55%) respondents living in IDP camps. This association was statistically significant (X^2= 15.0277; p= <0.0001).

Table: 4.2a – Exposure to Traumatic Experiences among study participants

Related factors	At Home n (%)	On IDP Camps n (%)	X^2	p
Exposed to trauma in the past one year				
Yes	108(67.5%)	122(76.3%)	3.030	0.082
No	52(32.5%)	38(23.8%)		
Total	160(100%)	160(100%)		
Trauma frequency				
Once	108(69.2%)	98(61.3%)	2.217	0.137
Several times	48 (30.8%)	62(38.8%)		
Total	154(100%)	160(100%)		
Level of traumatic exposure				
Evacuated from town				
Experienced/witnessed	82(51.6%)	152(95.0%)	76.950	**<0.0001***
Heard about it/None	77(48.4%)	8(5.0%)		
Total	159(%100)	160(100%)		
Death of family member				
Experienced/witnessed	73(48.3%)	139(86.9%)	53.149	**<0.0001***
Heard about it/None	78(51.7%)	21(13.1%)		
Total	151(100%)	160(100%)		
Witnessed/Experienced torture				
Experienced/witnessed	18(12.3%)	122(76.3%)	125.675	**<0.0001***
Heard about it/None	128(87.7%)	38(23.8%)		
Total	146(100%)	160(100%)		
Heard bomb blasts				
Experienced/witnessed	52(33.3%)	88(55.0%)	15.0277	**<0.0001***
Heard about it/None	104(66.7%)	72(45.0%)		
Total	156(100%)	160((%)%)		
Without shelter				
Experienced/witnessed	33(22.1%)	116(72.5%)	78.343	**<0.0001***
Heard about it/None	116(77.9%)	44(27.5%)		
Total	149(100%)	160(100%)		

*Significant at p<0.05
N<160 indicates missing data

4.1.2 Stress Coping Strategies

Table 4.2b below compares the different ways of coping with trauma among participants and was statistically significant ($p < 0.05$).

Table: 4.2b: Ways of coping with stress

Coping styles ways	At Home n (%)	On IDP Camps n (%)	X^2	p-value
Reading the Kuran	25(15.6%)	41(25.6%)	106.428	**<0.0001***
Pray to Allah/Observing Prayer	41(25.6%)	33(20.7%)		
Rest and Sleep	29(18.1%)	18(11.3%)		
Others	23(14.4%)	68(42.5%)		
Total	**118(73.7%)**	**160(100%)**		

*Significant at $p<0.05$

4.2 Prevalence of common mental health disorders

Table 4.3 below shows the prevalence of common mental health disorders (depression and PTSD) was higher among adolescents in IDP camps and was statistically significant (p <0.05).

Table 4.3: Prevalence of common mental health disorders; Depression and PTSD

Prevalence	At Home n (%)	On IDP Camps n (%)	X^2	p
Depression				
Yes	46(28.8%)	83(51.9%)	17.780	**<0.0001***
No	114(71.3%)	77(48.1%)		
Total	160(100%)	160(100%)		
PTSD				
Yes	14(8.8%)	46(28.8%)	21.005	**<0.0001***
No	146(91.3%)	114(71.3%)		
Total	160(100%)	160(100%)		

*Significant at p<0.05

4.3 Association between common mental disorders and socio-demographic variables

4.3.1 Association between depression and socio-demographic variables among study participants

The association between socio-demographic factors and depression are shown in Table 4.4. Young adolescents (15-19 years) who living in IDP camps were significantly associated with depression at ($p < 0.05$). Both participants who reported perceived the non-cordial relationship with parents also were significantly associated with depression at ($p < 0.05$).

Table 4.4: Association between socio-demographic factors and common mental health disorder - Depression

	At Home N=160				On IDP Camps N=160			
Socio-demographic factors	**Depression Yes n (%)**	**Depression No n (%)**	**X^2**	**p**	**Depression Yes n (%)**	**Depression No n (%)**	**X^2**	**p**
Gender								
Male	21(28.4%)	53(71.6%)	0.009	0.923	52(48.6%)	55(51.4%)	1.389	0.239
Female	25(29.1%)	61(70.9%)			31(58.5%)	22(41.5%)		
Age (years)								
10-14	0(%)	4(100%)	1.655	0.198	21(24.4%)	65(75.6%)	56.149	**<0.0001***
15-19	46(29.5%)	110(70.5%)			62(83.8%)	12(16.2%)		
Family Type								
Monogamous	35(32.4%)	73(67.6%)	2.170	0.141	67(55.4%)	54(44.6%)	2.432	0.119
Polygamous	11(21.2%)	41(78.8%)			16(41.0%)	23(59.0%)		
Family Size								
Small(≤7members)	15(25.4%)	44(74.6%)	0.505	0.477	24(49.0%)	25(51.0%)	0.237	0.626
Large(>7members)	31(30.7%)	70(69.3%)			59(53.2%)	52(46.8%)		
Living with the parents								
Yes	43(28.3%)	109(71.7%)	0.315	0.575	80(52.3%)	73(47.7%)	0.238	0.625
No	3(37.5%)	5(62.5%)			3(42.9%)	4(57.1%)		
Relationship with parents								
Cordial	38(25.7%)	110(74.3%)	9.105	**0.003***	54(41.2%)	77(58.8%)	32.859	**<0.0001***
Non-Cordial	8(66.7%)	4(33.3%)			26(100%)	0(0%)		
Conflict					3(100%)	0(0%)		
Family support								
Supportive	40(29.2%)	97(70.8%)	0.093	0.760	82(52.9%)	73(47.1%)	2.101	0.147
Non-Supportive	6(26.1%)	17(73.9%)			1(20.0%)	4(80.0%)		
Childhood Trauma experiences								
Yes	8(38.1%)	13(61.9%)	1.126	0.289	24(64.9%)	13(35.1%)	3.253	0.071
No	36(26.9%)	98(73.1%)			59(48.0%)	64(52.0%)		
Family history of mental illness								
Yes	8(28.6%)	20(71.4%)	0.004	0.953	33(62.3%)	20(37.7%)	3.426	0.064
No	37(29.1%)	90(70.9%)			50(46.7%)	57(53.3%)		
Use of any psychoactive substance								
Yes	0(%)	1(100%)	0.404	0.525	1(33.3%)	2(66.7%)	0.421	0.516
No	45(28.8%)	111(71.2%)			82(52.2%)	75(47.8%)		

*Significant at p<0.05

4.3.2 Association between PTSD and socio-demographic variables

Table 4.5 below shows, seven (7) out of 74 (9.5%) male respondents who lived at home had PTSD compared to 7 out of 86 (8.1%) female respondents. This association was however not significant (X^2= 0.086; p=0.076). On the other hand, thirty-seven (37) out of 107 (34.6%) male respondents living in IDP camps had PTSD compared to 9 out of 53 (17%) female respondents; and the association was found to be significant (X^2= 5.325; p= 0.026). Also, two out of 59 (3.4%) respondents living at home and who came from a family of no more than seven people, had PTSD, compared to 12 out of 101 (11.9%) respondents from a family of more than seven people who had PTSD. This association was, however, not significant (X^2= 3.342; p= 0.056). On the other hand, 5 out of 49 (10.2%) respondents who lived in IDP camps and who came from a family of no more than seven people had PTSD, compared to 44 out of 101 (36.9%) respondents who came from a family of more than seven people had PTSD. This association was found to be significant (X^2=11.785; p= <0.0001).

Table 4.5: Association between socio-demographic factors and common mental health disorder - PTSD

Socio-demographic factors	At Home N=160 PTSD Yes n (%)	PTSD No n (%)	X^2	p	On IDP Camps N=160 PTSD Yes n (%)	PTSD No n (%)	X^2	p
Gender								
Male	7(9.5%)	67(90.5%)	0.086	0.786	37(34.6%)	70(65.4%)	5.325	**0.026***
Female	7(8.1%)	79(91.9%)			9(17.0%)	44(83.0%)		
Age (years)								
(10-14)	0(0%)	4(100%)	0.391	0.691	19(22.1%)	67(77.9%)	3.998	**0.034***
(15-19)	14(9.0%)	142(91.0%)			27(36.5%)	47(63.5%)		
Family Type								
Monogamous	9(8.3%)	99(91.7%)	0.072	0.772	30(24.8%)	91(75.2%)	3.770	0.067
Polygamous	5(9.6%)	47(90.4%)			16(41.0%)	23(59.0%)		
Family Size								
Small(≤7members)	2(3.4%)	57(96.6%)	3.342	0.056	5(10.2%)	44(89.8%)	11.785	**<0.0001***
Large(>7members)	12(11.9%)	89(88.1%)			41(36.9%)	70(63.1%)		
Living with the parents								
Yes	14(9.2%)	138(90.8%)	0.802	0.472	43(28.1%)	110(71.9%)	0.662	0.323
No	0(0%)	8(100%)			3(42.9%)	4(57.1%)		
Relationship with parents								
Cordial	12(8.1%)	136(91.9%)	1.012	0.283	29(22.1%)	102(77.9%)	17.907	**<0.0001***
Non-Cordial	2(16.7%)	10(83.3%)			14(53.8%)	12(46.2%)		
Family support								
Supportive	12(8.8%)	125(91.9%)	0.000	0.675	45(29.0%)	110(71.0%)	0.192	0.553
Non-Supportive	2(8.7%)	21(91.3%)			1(20.0%)	4(80.0%)		
Childhood Trauma experiences								
Yes	3(14.3%)	18(85.7%)	0.811	0.289	22(59.5%)	15(40.5%)	20.590	**<0.0001***
No	11(8.2%)	123(91.8%)			24(19.5%)	99(80.5%)		
Family history of mental illness								
Yes	3(10.7%)	25(89.3%)	0.117	0.482	23(43.4%)	30(56.6%)	8.046	**0.004***
No	11(8.7%)	116(91.3%)			23(21.5%)	84(78.5%)		
Use of any psychoactive substance								
Yes	0(0%)	1(100%)	0.098	0.911	1(33.3%)	2(66.7%)	0.031	0.641
No	14(9.0%)	142(91.0%)			45(28.7%)	112(71.3%)		

*Significant at p<0.05

4.4 Association between exposure to traumatic experiences and common mental disorders

4.4.1 Association between exposure to traumatic experiences and common mental disorders among adolescents living at home

In Table 4.6 below shows the association between common mental disorders and exposure to traumatic experiences among adolescents living at home with their parents. However, there was not found any significant association.

Table 4.6: Association between common mental disorders and exposed traumatic experiences among adolescents living at home

	At Home N=160							
Exposed traumatic experiences	**Depression Yes n (%)**	**Depression No n (%)**	**X^2**	**p**	**PTSD Yes n (%)**	**PTSD No n (%)**	**X^2**	**p**
Evacuated from town								
Experienced/witnessed	24(29.3%)	58(70.7%)			7(8.5%)	75(91.5%)		
Heard about it/None	22(28.6%)	55(71.4%)	0.009	0.923	7(9.1%)	70(90.9%)	0.015	0.902
Death of family member								
Experienced/witnessed	22(30.1%)	51(69.9%)			9(12.3%)	64(87.7%)		
Heard about it/None	20(25.6%)	58(74.4%)	0.380	0.538	4(5.1%)	74(94.9%)	2.485	0.115
Witnessed/Experienced torture								
Experienced/witnessed	5(27.8%)	13(72.2%)	0.012	0.913	2(11.1%)	16(88.9%)	0.377	0.539
Heard about it/None	34(26.6%)	94(73.4%)			9(7%)	119(93%)		
Hear bomb blasts								
Experienced/witnessed	20(38.5%)	32(61.5%)			6(11.5%)	46(88.5%)		
Heard about it/None	26(25%)	78(75%)	3.021	0.082	8(7.7%)	96(92.3%)	0.628	0.428
Without shelter								
Experienced/witnessed	8(24.2%)	25(75.8%)			2(6.1%)	31(93.9%)		
Heard about it/None	33(28.4%)	83(71.6%)	0.228	0.633	9(7.8%)	107(92.2%)	0.108	0.742

4.4.2 Association between exposure to traumatic experiences and common mental disorders among adolescents living in IDP camps

Table 4.7 below shows an association between exposure to traumatic experiences (ranging from (death of family member, witnessed/experiences torture, heard bomb blasts and displacement) through by experiencing or eye witnessing or heard about it) and common mental disorders (Depression and PTSD) among adolescents living in IDP camps were statistically significant at ($p < 0.05$).

Table 4.7: Association between common mental disorders and exposed traumatic experiences

	On IDP Camps N=160							
Exposed traumatic experiences	**Depression Yes n (%)**	**Depression No n (%)**	**X^2**	**p**	**PTSD Yes n (%)**	**PTSD No n (%)**	**X^2**	**p**
Evacuated from town								
Experienced/witness-ed	81(53.3%)	71(46.7%)	2.436	0.119	44(28.9%)	108(71.1%)	0.058	0.810
Heard about it/None	2(25%)	6(75%)			2(25%)	6(25%)		
Death of family member								
Experienced/witness-ed	82(59%)	57(41%)			45(32.4%)	94(67.6%)		
Heard about it/None	1(4.8%)	20(95.2%)	21.492	**<0.0001***	1(4.8%)	20(95.2%)	6.790	**0.009***
Witnessed/Experie-nced torture								
Experienced/witness-ed	82(67.2%)	40(32.8%)	48.407	**<0.0001***	45(36.9%)	77(63.1%)	16.596	**<0.0001***
Heard about it/None	1(2.6%)	37(97.4%)			1(2.6%)	37(97.4%)		
Hear bomb blasts								
Experienced/witness-ed	83(94.3%)	5(5.7%)	141.11	**<0.0001***	46(52.3%)	42(47.7%)	52.823	**<0.0001***
Heard about it/None	0(%)	72(100%)	0		0(%)	72(100%)		
Without shelter								
Experienced/witness-ed	82(70.7%)	34(29.3%)	59.812	**<0.0001***	45(38.8%)	71(61.2%)	20.770	**<0.0001***
Heard about it/None	1(2.3%)	43(97.7%)			1(2.3%)	43(97.7%)		

*Significant at p<0.05

4.5 Comparison of the self-esteem profiles of participants

Table 4.8 below shows the self-esteem profiles among participants living at home and those who lived in IDP camp. Adolescents living in IDP camps had higher self-esteem compared to adolescents living with parents at home (X^2 = 34.755; p= <0.0001). This could be explained by the adolescents in IDP camps were accepting the difficult situation that they were living in.

Table 4.8: Measurement of self-esteem among adolescents in both groups

	At Home n (%)	**On IDP Camps n (%)**	**X^2**	**p**
Self-esteem				
High	54(34.4%)	108(67.5%)	34.755	**<0.0001***
Low	103(65.6%)	52(32.5%)		
Total	**157(100%)**	**160(100%)**		

*Significant at p<0.05
N<160 indicates missing data

Chapter Five
Discussion, Conclusion and Recommendation

5.1 Discussion

This was a comparative study to determine traumatic exposure experiences and to compare the prevalence of common mental disorders (Depression and PTSD) between adolescents living in the community and attending school and those living in IDP camps in Mogadishu, Somalia.

The findings of this study discussed under the following

- The socio-demographic characteristics of the two groups
- Prevalence of common mental disorders among adolescents in IDP and adolescents living in the community
- Correlates of common mental disorders
- Measurement of self-esteem among adolescents in both groups

5.1.1 Sociodemographic characteristics

In this study, the median age of the respondents was 16 years and mean age of 15.5 years. The majority of the respondents were older adolescents aged 15 to 19 years in both participants. In this study, age has been found to be significantly associated to presence of common mental disorders (depression and PTSD), similar reported studies that the older adolescent has been associated with common mental disorders such as PTSD and depression (Okello et al., 2013; Smid et al., 2011). Khamis, (2012), has been found that older adolescents may have a better understanding of their problems than younger adolescents.

All the participants were Muslims, which reflects the main religion in Somalia. Majority of the

participants from IDP camps were from monogamous families, whereas, the majority of the respondents from the community were from polygamous families. This is on account of the social, financial and mental limitations around with those living in IDP camps. This prevents the men from marrying more than one wife.

Majority of the participants living in IDP camps also were observed to belong to larger families compared to those from community sample. This might be on account of the displacement of the families which then makes one family to cater for other families or serve as foster parent.

Participants from the community reported more cordial relationships with their parents than participants living in IDP camps. Both group of the participants reported similar levels of supportive from their families. The finding of this study is similar to studies that has been reported on the relationship between adolescents and their parents in relation to family support and cordiality (Mary et al., 2005; Ofole and Agokei Stanley, 2014).

5.1.1.1 Exposure to traumatic events and frequency

Both groups of participants –those living in the community and those living in IDP camps –were exposed to several traumatic events. However, those living in IDP camps had higher exposure to traumatic events compared to the sample from the community. Furthermore, the number of respondents who experienced or witnessed traumatic events (ranging from being displaced, witnessed a death of a family member and heard bomb blasts) were higher among adolescents living in IDP camps. These experiences were also shown to have a significant association with the development of mental disorders. A similar study conducted on displaced adolescents in Kenya found that more than 80% of the respondents have been experienced exposure to trauma events by witnessing violence and witnessed a death family member were related to development mental

disorders either depression or PTSD (Seedat et al., 2004). Ellis et al., (2008), in the study conducted among Somali adolescent refugees who were resettled in the U.S, showed that adolescents who were exposed to several traumatic events subsequently developed some mental disorders. A similar study has documented a similar association in adolescents who have reported exposure to traumatic events, either by witnessing or experiencing (Taylor and Weems, 2009).

In this study, both groups of participants studied have been exposed to traumatic events in the past a year. However, this finding was not statistically significant. Furthermore, participants who were attending schools expressed concerns over their schooling activities becoming disrupted due to security issues and lack of access which often follows blockade of roads during conflicts.

5.1.1.2 Coping skills with stress

In this study, both groups of participants had multiple ways of coping with stresses, which are all religious ways of active coping. These ranged from praying to Allah, observing prayer, reading the Kuran, rest and sleep. This is explained by the widely held Socio-Religious belief that a person should turn to Allah if he/she is confronted with any life difficulties. A similar study among Iranian students showed that they normally coped with stress by having a closer relation with Allah which shows a strong religiosity and spirituality (Mirsaleh et al., 2010). Similarly, study conducted in the Republic of Georgia among those exposed to multiple traumatic events with active coping and religiosity were significantly associated with better mental health outcome (Saxon et al., 2017). According to Islamic culture, religious coping plays an important role and is used widely for dealing with life's difficulties (Aflakseir and Coleman, 2011).

5.1.2 Prevalence of common mental disorders

5.1.2.1 Depression

The prevalence of depression among adolescents living with their parents at home attending school was 28.8%. The finding of this study was close to the finding of studies conducted in Nigeria and in Kenya school adolescents aged between 12-17 years that the prevalence of depression was 23.8% and 26.4% respectively (Adeniyi et al., 2011; LI Khasakhala et al., 2012). The finding of a study in southwest Nigeria was slightly lower than the finding of this study with 21.2% (Fatiregun and Kumapayi, 2014). Study conducted in mainland China among adolescents in secondary school has been found that the prevalence of depression of 24.3% as well as another two studies reported similar findings from Jordan and in Nepal was 16.3% and 16.8% respectively (Dardas et al., 2018; Luitel et al., 2018; Tang et al., 2019).

The prevalence of depression among adolescents living in IDP camps was 51.9%. this is similar to the findings of a study conducted in Nigeria among internally displaced persons which revealed a slightly higher prevalence of 59.7% (Sheikh et al., 2015b). Also, the prevalence of depression was reported as 67% in northern Uganda among IDPs (Roberts et al., 2008a). The prevalence of depression is also reported in southeast Ethiopia among Somali refugee at Melkadida camp with 38.3 % but the finding is lower than this study (Feyera et al., 2015). The finding with the same almost that Morgos et al., 2007 has been reported in southern Darfur among displaced adolescents with 38%.

Prevalence's with a lower rate of depression has been reported among adolescents internally displaced persons in Central Sudan and in South Darfur with 24.3% and 13.5% respectively (Elhabiby et al., 2015b; Salah et al., 2013). Prevalence studies conducted in other parts of the world have been found among adolescents internally displaced persons and returnees in Georgia was 14.0% (Makhashvili et al., 2014), while refugees who had resettled in the US have reported a lower

level of depression (Reavell & Fazil, 2017).

There are several reasons for the wide range of prevalence rates in the review. These include the use of different study instruments from different areas and some of the studies used a narrowed age samples, as well as some of the journals reviewed, were published years ago.

5.1.2.2 Post-traumatic Stress Disorder

The finding of this study suggest that the prevalence of PTSD among adolescents living in the community was 8.8%, which is lower than the prevalence estimated by a recent review paper for adolescents in LMICs which shows the prevalence of PTSD of 10.6% on adolescent living in a community study in Lake Victoria, Kenya (Jenkins et al., 2015). While David Musyimi Ndetei et al., 2016 found a prevalence of PTSD with 7.4% among Kenyan school adolescents and also found earlier higher rates which shows the prevalence of 50.5% in Kenya high school students (Ndetei et al., 2007). Similarly, Karsberg et al., (2012), has reported the prevalence of 34.5% among Kenyan adolescents in secondary boarding schools. Furthermore, the prevalence of 22% was found among South African adolescents in urban secondary schools (Seedat et al., 2004). However, a study conducted in Iraq have reported a higher prevalence rate of PTSD among secondary school students with 61% (Al-Hadethe et al., 2014). These discrepancies may be attributed to differences in the methods, instruments, age categories, type of informant, and geographical location across the various studies (Patel et al., 2008).

The prevalence of PTSD among adolescents living in IDP camps was 28.8%. A cross-sectional household study conducted in Rwanda among adolescent after the civil war has been found a prevalence of 24.8% (Pham et al., 2004). High prevalence rates of post-traumatic distress disorder have been reported among refugees and internally displaced persons in the West Nile delta region

for three different population accordingly as follows Sudanese nationals, South Sudanese refugees and Ugandan residents (44.6%, 50.5% and 23.2% respectively) (Neuner et al., 2004). A comparative study conducted between refugees and host populations in Southwest Nigeria has been found the prevalence of Post-traumatic Stress Disorder of 34% (Akinyemi et al., 2012).

In contrast, studies have been found a higher rate of PTSD among internally displaced persons in Darfur - 54% (Hamid and Musa, 2010), while Morgos et al., (2007), found also the highest rate of PTSD among displaced adolescents in southern Darfur with 75%. The prevalence of PTSD amongst internally displaced persons in northern Uganda was reported as 54% by (Roberts et al., 2008a). A study conducted in Siri Lanka among prolonged IDPs has been found prevalence of PTSD was 2.8% (Siriwardhana et al., 2013).

5.1.3 Correlates of common mental disorders

In this study, a significant association between depression and age was identified. Implying that the older adolescents aged 15 to 19years had higher prevalence of depression than younger adolescent aged 10 to 14 years. Similarly, Tully et al., 2009 has reported that Australian older adolescents had a higher prevalence of depression.

This study shows a significant association between socio-demographic factors and post-traumatic stress disorders among adolescents living in IDP camps ($p < 0.05$). Similarly, studies have found being female living in the IDP camps was significantly having higher rates of PTSD and experienced more depression than males (Al-Hadethe et al., 2014).

Also, studies have demonstrated a relationship between the number times an individual is exposed to traumatic events and the likelihood for such person to meet criteria for depression or PTSD or

either. Roberts et al., 2008a, has reported a study conducted in northern Uganda amongst internally displaced adolescents those who had experienced 8 or more traumatic events showed that they met the criteria for depression or PTSD.

Limitations of the study

The study has some weaknesses and limitations:

The data collected from secondary school students in Mogadishu does not reflect all secondary schools in Somalia. This limits the generalization of these results to the general population. These students have only known war. The study was unable to consistently match the gender of interviewer and respondents. As a result, there may have been under-reporting of certain sensitive traumatic events like rape. Since the study design is cross-sectional study, it does not allow to infer causation. Since these findings are based on an interviewer-administered questionnaire, rather than a clinical appraisal, thus the endpoint of common mental disorders (depression and PTSD) is not certain.

5.2 Conclusions

The study revealed a relatively high prevalence of common mental disorders (depression and post-traumatic stress disorder) among adolescents living in IDP camps as compared adolescents living in the community with their parents, and attending school.

Association between common mental disorders and socio-demographic variables; being female, older adolescent, perceived the non-cordial relationship with parents, observed to belong larger families and exposure to traumatic events during childhood are most determinants of depression

and post-traumatic stress disorder.

The study has revealed that both groups of participants –those living in the community and those living in IDP camps –were exposed to several traumatic events. However, those living in IDP camps had higher exposure to traumatic events compared to the sample from the community and were significantly associated with development of mental health problems among the adolescents

Interestingly, the study has found that the adolescents living in IDP camps had higher self-esteem compared to adolescents living with parents at home.

5.3 Recommendations

Therefore, I recommend the following:

1. Strengthening the clinical setup and establishing good referral linkage with mental health working organizations.
2. All stakeholders should draw a plan for the resolution to the conflict in Somalia and recurrent droughts that would reduce the internally displaced persons, support a healing process, and help IDPs re-build their lives.
3. The government should establish a resettlement process and rehabilitation program that includes improving living conditions, provide education and additional health centers.

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APPENDICES:

Serial Number……...
Name…….

This is a study to screen common mental health problems among adolescents with stressful events and how it affects their lives

INFORMATION PAGE

Dear adolescent,

I am conducting a study on the prevalence of Depression and Post-traumatic stress disorder among adolescents living in the community. I wish to ask you some questions regarding any recent or past traumatic event and how it has affected you, your school/life and health. It is one of my responsibilities to explain how I will protect the information you give and I explained this below. Please ask me anything that you don't understand.

Procedure: It will involve answering questions on paper, but it is not an exam. For those of you who have developed problems already, I will guide you on the best solutions available and ensure you get appropriate help to solve the problems. Questions would be asked during a free period so as not to disturb your lessons. The questions are in Somali, but I also have the English version, if you want it, just ask me.

Participation: Taking part of this study is completely voluntary. You may refuse or pull out at any time. The information obtained from the study will be used to write my report. You may leave the class, or leave any question you don't want to answer blank, or you can tell your headmaster if you don't want to continue. Taking part or refusing to take part will not affect you in any way.

Confidentiality: I want to assure you that any information you give me will remain between us, except if you say something that will harm you or another person. In that case, I will send you or the person to where you will get help, but I will inform you first. The report I am writing will not include any information to identify you; the consent forms will be destroyed after the data has been collected. All information, including the consent forms, will be kept securely under lock and key or in password-protected files. Your identity will be protected and not disclosed.

Risk and benefits: There is no known risk associated with this study. You will understand how to cope with stress/depression and ways that will help you in adjusting to the stress, where and when to seek help.

Contact information: If you have any questions or need more clarification kindly contact me at 0615556610. If you need to see me, you can tell the headmaster of the school who will communicate with me, or you can send a message to my phone on where and when to meet you and I will be there.

ASSENT STATEMENT

Please sign, date and return this page to the school if you agree to participate in this study. The research will involve only adolescents in each school.
Please tick each box to indicate that you understand the conditions of the research, and then sign below.

- ☐ I have read and understood the information about the study.
- ☐ I understand that my participation is voluntary and that I can withdraw from the study at any point if I wish to do so.
- ☐ I understand that my identity will be protected and that the data, once collected, will not in any way identify them as an individual.
- ☐ I understand that the data from this research will be used for academic research and subsequent publications.
- ☐ I agree to participate in this study and hereby consent to the above. I acknowledge that I have received a copy of the information sheet.

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Signature of Participants Date:_____

Your participation in this study is highly appreciated

QUESTIONNAIRE

DEMOGRAPHIC DATA

1. Gender a. Male b. Female

2. Age.....Years

3. Ethnicity.....

4. Religion……..

5. Area of residence.....

6. Family type a. Monogamous b. Polygamous c. Other specify
7. Family size (specify number) .....
8. Where do you live a. At home b. On IDP camp c. Other specify.....
9. Do live with your parents a. Yes b. No
10. If no who do you live with.....
11. Relationship with parents' a. Cordial b. Non cordial c. Conflict d. Other specify……
12. Family support a. Supportive b. Non supportive c. Other specify
13. How long have you been living here.....

PSYCHO-SOCIAL DATA

1. Have you or a loved one been involved in any of the following events?

EVENTS	**Experienced**	**Witnessed**	**Heard**	**No**
Evacuated from town				
Shortage of medicine				
Lack of food				
Stolen possessions				
Without shelter				
Shortage of clothing				
Separated from loved ones				
Solitary confinement				
Lost property				
Family beaten				
Ill health				
Death of family member				
Witnessed violence				
Kidnapped or held hostage				
Loved ones disappeared				
Destruction – personal property				
Witnessed or experienced torture				
Beaten				
Physical injury				
Witnessed death				

Sexual acts (rape and molestation)				
Hear gun shots				
Hear Bomb blast				
Burning down of your homes				
Terrorist attacks in your area				
Lack of water				
Lack of toilet facilities				
Lack of privacy				

2. Was the traumatic event in the past one year a. Yes b. No
If No, how long ago was this event; specify……...
3. Has this traumatic event been continuous, or happened only once? a. Yes b. No
If Yes, how many times? Specify……

4. Has it affected your life and other activities? a. Yes b. No
If yes specify……
5. Did any of these events occur to you when you were child? a. Yes b. No
Specify if yes……...
6. How long ago did the childhood trauma occur? ..... Years
7. Does your family have a history of mental illness? a. Yes b. No
8. Do you smoke or take any psychoactive substance (such as khat) a. Yes b. No
Specify if yes……
Question 9 and 10 to be answered only if 8 is yes
9. For how long……
10. How has it affected your life……
11. How do you normally cope with any stress? Specify…….

Living conditions

Please tick appropriately ("**yes**" or "**No**") what your experience is about your living condition in this camp:

	YES	**NO**
1. Accommodation is not cramped		
2. A bed/mat/mattress is available		
3. Private facilities are available		
4. Toilets or latrines are available		
5. There has been sufficient food and water		
6. Protection against animals and insects is provided		
7. The organizational support is enough		
8. My health has been good or very good		

Harvard Trauma Questionnaire (HTQ)

Instruction: I am going to mention problems and complaints that victims of violent crisis sometimes have in response to stressful life experiences. Please indicate how much you have been bothered by that problem *in the last one month*.

Response	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1. Recurrent thoughts or memories of the most hurtful or terrifying events					
2. Feeling as though the event is happening again					
3. Recurrent nightmares					
4. Feeling detached or withdrawn from people					
5. Unable to feel emotions					
6. Feeling jumpy, easily startled					
7. Difficulty concentrating					
8. Trouble sleeping					
9. Feeling on guard					
10. Feeling irritable or having outbursts of anger					
11. Avoiding activities that remind you of the traumatic or hurtful events					
12. Inability to remember parts of the most hurtful or traumatic events					
13. Less interest in daily activities					
14. Feeling as if you don't have a future					
15. Avoiding thoughts or feelings associated with the traumatic or hurtful events					
16. Sudden emotional or physical reaction when reminded of the most hurtful or traumatic events					

PTSD SCORE- HTQ: Sum of all items 1-16 = $\frac{\text{Sum of all items 1-16}}{16}$ ☐

Individuals with total score > 2.5 are considered Symptomatic for PTSD

Rosenberg Self-Esteem Scale

The scale is a ten item Likert scale with items answered on a four-point scale - from strongly agree to strongly disagree.

Instructions: Below is a list of statements dealing with your general feelings about yourself.
If you **Strongly Agree**, circle **SA**.
If you **Agree** with the statement, circle **A**.
If you **Disagree**, circle **D**.
If you **Strongly Disagree**, circle **SD**

1. On the whole, I am satisfied with myself.	**SA**	**A**	**D**	**SD**
2. At times, I think I am no good at all.	**SA**	**A**	**D**	**SD**
3. I feel that I have a number of good qualities.	**SA**	**A**	**D**	**SD**
4. I am able to do things as well as most other people.	**SA**	**A**	**D**	**SD**
5. I feel I do not have much to be proud of.	**SA**	**A**	**D**	**SD**
6. I certainly feel useless at times.	**SA**	**A**	**D**	**SD**
7. I feel that I'm a person of worth, at least on an equal level with others.	**SA**	**A**	**D**	**SD**
8. I wish I could have more respect for myself.	**SA**	**A**	**D**	**SD**
9. All in all, I am inclined to feel that I am a failure.	**SA**	**A**	**D**	**SD**
10. I take a positive attitude toward myself.	**SA**	**A**	**D**	**SD**

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

Serial No _____ DATE: _____

Over the *last 2 weeks,* how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3
add columns:		+	+	
TOTAL:				

10. If you checked off *any* problems, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?

- **Not difficult at all** _____
- **Somewhat difficult** _____
- **Very difficult** _____
- **Extremely difficult** _____