THE INFLUENCE OF HIV STATUS DISCLOSURE ON DEPRESSIVE SYMPTOMS AND QUALITY OF LIFE AMONG HIV INFECTED CHILDREN OF 10 TO 15 YEARS RECEIVING HIV CARE SERVICES AT CENTRAL ZONE REGIONS OF TANZANIA

LOVENESS ISAYA URASSA

MASTER OF SCIENCE IN PAEDIATRIC NURSING

THE UNIVERSITY OF DODOMA

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BY

LOVENESS ISAYA URASSA

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THE UNIVERSITY OF DODOMA

NOVEMBER, 2020

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Signature..... Date 30/11/2020

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CERTIFICATION

The undersigned certify they have read and hereby recommend for acceptance by the University of Dodoma dissertation titled **"***The Influence of HIV Status Disclosure on Depressive Symptoms and Quality of life among HIV - Infected Children of 10 to 15 Years Receiving HIV Care Services at Central Zone Regions of Tanzania"* in fulfillment of the requirements for the degree of master of science in paediatric nursing of the University of Dodoma

Dr. Nyasiro Gibore

Signature ..... Date: 30/11/2020

(Supervisor)

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ABSTRACT

Background: World Health Organization recommends HIV status disclosure to be done to children of age 6-12 years. HIV status disclosure among children is important for improving their self-care behaviours, psychological well-being, and quality of life. However some previous studies revealed that children who received HIV disclosure ended up with depressive symptoms. The aim of this study was to assess the influence of HIV status disclosure on depressive symptoms and quality of life among HIV-infected children in central zone of Tanzania.

Methodology: A cross-sectional study was conducted on 366 HIV infected children aged 10-15 years attending at Care and Treatment Centres together with their caregivers. A multistage sampling method was used in obtaining sample from region to district and at clinic level. Data were managed and analysed using Statistical package for social sciences (SPSS) version 20 and the results were considered statistically significant at p-value of less than 0.05. Descriptive analysis was used to assess HIV disclosure status, quality of life and the prevalence of depressive symptoms. To assess the association between variables, a chi-square test and a logistic regression were used.

Results: Among the HIV infected children; the HIV disclosure rate was estimated to be 59.84%, the prevalence of depressive symptoms was 51.09% and 54.92% of children had a low quality of life. Disclosure status was associating with child's age, the older the child the more likely they are to be disclosed (AOR = 2.464, $p < 0.001$). The study found a significant association between disclosure status and depressive symptoms among HIV infected children, full-disclosed children were more likely to have depressive symptoms than non-disclosed children (AOR = 2.362, $p = 0.002$).

Conclusion: Although full-disclosure associated with increase in depressive symptoms, depressive symptoms decreased when children received post-disclosure. This study recommends on the improvement of disclosure process to reduce the risk of depressive symptoms influenced by disclosure. Likewise the study encourage more follow-up after full-disclosing to children, this is because with post-disclosure children are less likely to have depressive symptoms.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AOR	Adjusted Odds Ratio
APS	American Psychological Association
ART	Antiretroviral Treatment
CTC	Care and Treatment Clinic
HIV	Human Immunodeficiency Virus
MoHSW	Ministry Of Health and Social Welfare
NACP	National AIDS Control Programme
NBS	National Bureau of Standards
NIMH	National Institute of Mental Health
OIs	Opportunistic Infections
PI	Principal Investigator
PLWHA	People Living with HIV/AIDS
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
SRS	Simple Random Sampling
TACAIDS	Tanzania Commission for AIDS National HIV and AIDS
UNAIDS	United Nations Programme on HIV/AIDS
UNCRC	United Nations Conventions on Rights of the Child
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WHOQOL	World Health Organization Quality of life
FA	Factor Analysis

DEFINITION OF KEY TERMS

- **Disclosure:** A process of making facts or information to be known or to reveal unknown to a child about certain diseases as the child matures cognitively, socially and emotionally(Glaser, 2016).
- **Non-disclosure:** Maintaining a complete secret around the diagnosis or not telling the truth about the diagnosis.(Glaser, 2016).
- **Partial disclosure:** Describing the child's condition to a different illness.
- **Full disclosure: D**elivering full information and knowledge about HIV to a child(Glaser, 2016).
- **Child:** A person between births up to 18 years of age (UNCRC, 2020).
- **Caregiver:** Someone responsible for the well-being of the child. Aperson who brings the child to clinic and who is knowledgeable about child's HIV care behaviours, eg, adherence of ART(vreeman et al., 2018).
- **Infection:** Having one positive HIV–DNAPCR test **or** one positive HIV-ELISA antibody test(Ayaya, et al., 2014).
- **Depressive Symptom:** Any two or more simultaneous symptoms of depression present for most or all of the time, at least two weeks in duration, and associated with signs of social dysfunction (Chatterji *at* el., 2010).
- **Depression**: A common mental disorder presents with depressed mood, loss of interest or pleasure, decreased energy, guilty feeling or low self-worth, disturbed sleep or appetite and poor concentration (WMHD, 2012).
- **Quality of life:** Degree of excellence in a person's life at any given period that contribute to satisfaction and happiness of the person that benefits the society.
- **Antiretroviral therapy adherence:** Patient ability to follow treatment plan, take medications at prescribed times and frequencies, and follow restrictions regarding food and other medications.
- **Opportunistic Infections:** Diseases and or infections occurring as a result of HIV infection complications.
- **Human Immunodeficiency Virus:** Virus that attacks the immune system, the body natural defence system (World Health Organization, 2011).
- **Prevalence:** A frequency of existing cases, in a defined population at a given point in time (Bonita, Beaglehole, & Kjellstrom, 2006).

CHAPTER ONE

1.0 INTRODUCTION

1.1 General introduction

Globally, about 36.7 million people live with HIV/AIDS (UNAIDS, 2016). Of these, 1.8 million are children less than 15 years old (UNAIDS, 2016). Among the HIV-infected children over 90% come from Sub-Saharan Africa (SSA) and most of them are infected by their HIV-positive mothers during pregnancy, childbirth or breastfeeding (Harkins et al., 2015; UNAIDS, 2016;WHO, 2017). Every day it is estimated that about 1400 children are newly diagnosed with HIV infection and 1000 children die of HIV-related complications (Rivera, 2019).

Disclosure among HIV infected children is still a challenge among caregivers (Christopher *et al.*, 2019). A study conducted in Sub-Saharan Africa countries about a decade past, showed a disclosure rate of 29 % to 63% (Vaz, Eng, Maman, Tshikandu, & Behets, 2010). A recent research evidence from a systematic review that involved eleven countries from Sub-Saharan Africa showed a disclosure rate ranging from 9% to 72% (Doat & Negarandeh, 2019). In Tanzania, it was reported that only 9% of the HIV infected children aged below 15 years are aware of their HIV status (National Bureau of Statistics, 2018). In the central zone of Tanzania, the disclosure rate is documented as 5% and 3.6% for Dodoma and Singida respectively (NBS, 2018). This is still lower than the global target of achieving 90% of disclosure rate by 2020 (UNAIDS, 2014).

A considerable effort must be undertaken to ensure that HIV-infected children become aware of their status as soon as possible (WHO, 2014). In African countries including Tanzania, HIV disclosure rate to children is still low as pointed out by two studies conducted in Nigeria and Tanzania (Adefalu, Florence, Issa, & Adefalu, 2016; Kiula, Mapaja, 2019). With regards to the importance of disclosure to HIV infected children; the World Health Organization (WHO) released a guideline on how to support the caregivers on disclosure process. HIV disclosure to the children intends to improve the child's well-being by minimizing the potential compromise of depressive symptoms, quality of their life and relationship between child and caregivers (World Health Organization, 2011). The guideline recommends partial

disclosure to be done at the age of 6 years and full disclosure at the age of 12 years (Glaser, 2016).

The government of Tanzania have set the guideline for HIV-disclosure when the child is young as 4-6 years for a partial disclosure, and 8-10 years where the child receives the full disclosure (MoHSW, 2015). During the partial disclosure the child is told that she/he has a chronic disease that needs consistent clinic visits and daily medications use while during the full disclosure, the child is told that she/he suffers from HIV infection (Glaser, 2016; URT, 2015). According to the guideline, the child should be followed-up by the healthcare providers to assess the coping behavior after knowing his/her HIV status (Glaser, 2016).

In Sub Saharan Africa, delayed disclosure among HIV-infected children was found to be due to many factors such as; caregivers' fear of children to disclose the HIV status to their friends, lack of disclosing knowledge, and the claim that the children are young and could not handle the psychological impact of knowing their status (Doat & Negarandeh, 2019). Other studies showed that, after receiving HIV disclosure children ended up with depressive state and self-stigma (Adefalu, Tunde-Ayinmode, Awoye, Adefalu, & Adepoju, 2018; Paparini, 2017; UNAIDS, 2018). Furthermore, the children's reactions and feelings of guilt were also reported in the literature as the cause of caregivers not to disclose to their children (Doat & Negarandeh, 2019). However, some studies from SSA countries showed that depression among HIV-infected children reduced when they were timely disclosed of their HIV-status (Doat & Negarandeh, 2019).

Depressive state among HIV infected children following disclosure is characterized with the loss of mood, appetite, isolation as well as loss of interest (WHO, 2011; UNAIDS, 2016; Abebe, Shumet, Nassir, Agidew, & Abebaw, 2019). The available evidence show that the control and management of depressive symptoms among HIV infected children after disclosure is difficult as a result of caregivers and health care providers hesitate to meet the WHO disclosure guideline (Kiene, Dove, & Wanyenze, 2019).

According to Mbalinda et al., (2015), quality of life is a degree of excellence in a person's life at any given period that contribute to satisfaction and happiness of the

person. It covers all social, psychological, emotional, and physical parts of the individual's life. Different studies conducted in various counties revealed that; improvement in health of the HIV- infected children has an influence on their quality of life (Haseli et al., 2014). Other factors influencing the quality of life among HIV infected children are; social economic factors, adherence on medications, delayed disclosure, attendance in CTC clinic and opportunistic infections. Assessment of both disclosure and quality of life among HIV infected children may give valuable information about the influence of HIV status disclosure on quality of life (Gakhar et al., 2015). Bulali et al., (2018) suggest that a timely disclosure to HIV infected children helps to improve their quality of life and ART adherence.

So far in Tanzania, one study has been conducted on HIV disclosure, and quality of life among HIV infected children (Bulali et al., 2018). However the study did not focus on depressive symptoms of HIV infected children. Another study which focused on depressive symptoms did not include HIV disclosure (Lwidiko et al., 2018). Therefore, this study intends to assess both the influence of HIV status disclosure on depressive symptoms and quality of life among HIV infected children in central zone regions of Tanzania. The research findings from this study will help the health care authorities and program managers to put in place strategies that will enhance the implementations of disclosure in favor of reducing or avoiding the risk of depressive symptoms and improving quality of life among HIV infected children.

1.2 Problem Statement.

Depressive symptoms had been reported as the most common mental disorder; it ranks the fourth leading cause of disease burden and accounts for 3.7% of total disability adjusted life-years and 10.7% of total years lived with disability as cited Lwidiko et al., (2018). With no efforts in place, it is projected that by 2030, depression among the HIV infected population (including children) would be one of the top ten causes of morbidity in developing countries (Mathers & Loncar, 2006). Despite the release of the guideline on HIV disclosure by WHO, (2011) and Tanzania government (URT, 2015), still there is low HIV disclosure rate (9%) among HIV infected children in Tanzania (NBS, 2016) and little is known about the status of depressive symptoms and quality of life among HIV-infected children following disclosure. This makes difficult to intervene the signs of depressive

symptoms which may lead to severe illness, chronic mental illness and more children to be hospitalized (Vreeman et al., 2017). Also the little knowledge about the influence of HIV status disclosure on quality of life among HIV-infected children may lead to increase in challenges to improve their quality of life. There are limited published studies concerning the influence of HIV status disclosure on depressive symptoms and quality of life among HIV-infected children in central zone of Tanzania. Therefore, the aim of this study was to assess the influence of HIV status disclosure on both depressive symptoms and quality of life among HIV infected children aged 10 to 15 years in central zone regions of Tanzania.

1.3 Objectives

1.3.1 General Objectives

To assess the influence of HIV status Disclosure on Depressive Symptoms and Quality of life among HIV- Infected Children in central zone.

1.3.2 Specific Objectives

i. Assessing the HIV status disclosure among HIV infected children in Central Zone.

ii. Assessing the prevalence of depressive symptoms among HIV infected children in Central Zone.

iii. Assessing the quality of life among HIV infected children in Central Zone.

iv. Assessing the association between children's selected characteristics and depressive symptoms of HIV infected children in Central Zone

v. Assessing the association between caregivers' selected characteristics and depressive symptoms of HIV infected children in Central Zone

vi. Assessing the association between children's selected characteristics and quality of life of HIV infected children in Central Zone.

vii. Assessing the association between caregivers' selected characteristics and quality of life of HIV infected children in Central Zone.

1.3.3 Research Questions

i. What is the HIV status disclosure among HIV infected children in Central Zone?

ii. What is the prevalence of depressive symptoms among HIV infected children in Central Zone?

iii. What is the status of quality of life among HIV infected children in Central Zone?

iv. Which children's selected characteristics are associated with depressive symptoms of HIV infected children?

v. Which caregivers' selected characteristics are associated with depressive symptoms of HIV infected children?

vi. Which children's selected characteristics are associated with quality of life of HIV infected children?

vii. Which caregivers' selected characteristics are associated with quality of life of HIV infected children?

1.4 Significance of the Study

The Findings of this study will help to inform police makers, Ministry of Health and health stakeholders to develop implementable guidelines towards health care providers on the importance of disclosure among HIV-Infected children. The researcher believes that, the findings will support Health care providers to strengthen the methods of finding valuable information about the Influence of HIV status disclosure among HIV-infected children. The information will help in identifying the early signs of depressive symptoms among HIV infected children and how to manage them. The study will be significant to children living with HIV infection to provide disclosure at proper age regards to Tanzania guideline in order to improve quality of life among those infected children. Implementation of good policies related to HIV disclosure is of great benefit at community level, it will help the community to benefit by having a healthy, strong and independent generation which will increase productivity and eventually decrease in poverty.

In the academic field, the findings of this study will add knowledge in paediatric HIV care. Also the study may serve as a reference and help to show directions of the future paediatric HIV researches related to the issue of HIV-status disclosure, depressive symptoms and quality of life among children living with HIV-infection.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This section presents the review of the previous studies. The literature review section is divided into three sections. Section one focuses on theoretical reviews whereby the Social cognitive theory by Albert Bandura is provided. The second section focuses on the empirical literature reviews; the section is organized based on the specific research objectives. The third section, presents the conceptual framework which was designed by the researcher, using research variables from the research objectives and research title. Also the scholarly materials were accessed through Google scholar, Medline, PubMed and other search engines in order to have current information.

2.2 Theoretical framework

A theory usually explains a phenomenon. It is an integrated set of concepts that explain and predict observable events or changes in a society (Anfara & Mertz, 2014).

2.2.1 Social cognitive theory

This study is built on the social cognitive theory by Albert Bandura (1977). The Theory explains the developmental changes that people, particularly children undergo throughout their lives. On the face of it, this study is proposed to analyze the influence of HIV status disclosure on depressive symptoms and quality of life among HIV infected children. HIV disclosure was examined to assess its influence on depressive symptoms among HIV-infected children. According to Bandura, behavior is shaped and controlled by the environment or internal disposals. He further argued that, there were common relationship between thoughts, affects, and actions. This assumption gives an insight into examining different behaviors demonstrated by the children with HIV status disclosure. It also helps to evaluate the relationship between disclosure and the mental effects like depressive symptoms that children have developed. Also Bandura goes on arguing that expectations, beliefs, perceptions, goals and intention give shape and direction to behavior. With regard to the theory's

assumption, it is hereby argued that, caregivers experience the effects of depressive symptoms after disclosure of HIV- status to their children.

The theory further suggests that, people's behavior is affected by their thinking, beliefs, and feelings. This knowledge is important among caregivers to consider during the age of starting disclosure in order to understand children's cognitive skills, emotional maturity, environment, and the people around them. Other factors affecting disclosure among HIV-Infected children are; caregivers' belief on their children to be too young to be disclosed, fear of the children not to keep the secret to peoples surrounding them, fear of children negative reactions, and fear to hurt the children. Also another factor is biological factors; the families who have the history of mental health problems, here the depressive symptoms may be occur due to family history of mental illness, and not because of HIV disclosure among infected children. The knowledge created by this theory instructs the importance of studying on how age, sex, education level, and resident of caregivers can facilitate disclosure on time. It is argued that, when this process is delayed it may contribute to depressive symptoms among HIV- infected children due to unexpected diagnosis. The theory observed that, caregivers living in rural areas were able to disclose their children's HIV status compared to caregivers in urban areas. Also is has been reported that the most children living with the biological parent are more disclosed rather than children living with other relatives like grandmother/father, aunt/ankle and others relatives.

2.3 Empirical Review.

2.3.1 Prevalence of Depressive symptoms on HIV disclosure among infected children.

Depression is a common mental disorder presents with depressed mood, loss of interest or pleasure, decreased energy, guilty feeling or low self-worth, disturbed sleep or appetite and poor concentration (WMHD, 2012).This is a major problem in HIV-infected children's, because it can lead to poor adherence to ART, treatment failure, poor health that may lead to death. Depressive Symptom is any two or more simultaneous symptoms of depression present for most or all of the time, at least two weeks in duration, and associated with signs of social dysfunction (Chatterji *at* el.,

2010). Many studies have reported episodes of mental disorders among HIV infected children like depressive symptoms following HIV status disclosure to the children (Adefalu *et al.*, 2016; Doat & Negarandeh, 2019; Kalembo *et al*., 2019; Madiba & Matlala, 2012). However, some studies observed lack of connection to disclosure and depressive symptoms among HIV-infected children. Adefalu *et al.*, (2018) reported that, 18.4% of the children in Nigeria were aware of their HIV status. Adefalu further reported that, 63% of caregivers gave reason that they were afraid to disclose HIV status to their children. This was due to the fear of negative mental effect like depressive symptoms among their children (Adefalu *et al.*, 2018).

Another study observed that, 37% of the caregivers did not disclose HIV-status to their children out of fear that children may tell others about their HIV- status, fear of stigma, isolation and fear of hurt their children about their conditions (Adefalu et al., 2016). Among 89% participants with mental problems, 19.4% were not aware of their HIV- status while 11% were aware of their HIV- status (Vreeman, Mccoy, & Lee, 2017), however the awareness of HIV-status was not significantly associated with mental health problems. Also it has been reported that; children at school age are at a higher risk of psychiatric hospitalizations compared with the general pediatric population (Vreeman, Mccoy, & Lee, 2017).

Other Studies suggest that, depressive symptoms and anxiety are more prevalent among perinatally infected children compared to non-infected children's following disclosure (Sherr et al., 2014;Vreeman et al., 2019; Woollett et al., 2017). A cross-sectional study conducted in Kenya found that, mental illness is more prevalent by 24% for anxiety and 25% for depression in children living with HIV compared to non-infected children (Vreeman et al., 2017). A study conducted by Chand et al., (2019) revealed that, anxiety is related to fear and also was observed as a future-oriented mood state that consists of a complex cognitive effect, physiological disturbance, and behavioural reaction.

The cross section studies conducted in different countries separately found that, prevalence of depression among HIV infected children was 51.3% in Burkina Faso, 47% in Uganda and 45% in USA (Mellins & Malee, 2013 ;Abebe, Shumet, Nassir, Agidew, & Abebaw, 2019). The above-mentioned study from USA (Mellins & Malee, 2013) also identified a positive relationship between age of HIV infected

children and depressive symptoms. On the other hand, the studies conducted in Malawi and Kenya found a low prevalence of depressive symptoms for about 18.9% (Kim et al., 2015) and 17.8% (Kamau et al., 2012) respectively. Another study conducted by Le *et al.,* (2018) revealed that, African male children were more likely to develop anxiety which ends with depressive symptoms after knowing their HIV status compared to female children. Another study in England reported that, the symptoms of anxiety and depressive symptoms were more common among children who behaviourally acquired HIV than those perinatally infected, during delivery or breast feeding with their HIV-infected mothers (Brown, Whitley, Harper, & Nichols, 2015). Another study conducted in Zambia, revealed that, children reacted emotionally due to unexpected disclosure and believed no more life after knowing their HIV status (Okawa, 2017). A studies conducted in several developed and developing countries shows that , the children with HIV status develop increase sense of isolation, poor self-worth, and relight hopelessness which might lead to anxiety and depressive symptoms (Abebe et al., 2019).

A study conducted in Tanzania reported that, the school children were severely affected with anxiety and depressive symptoms after understanding their HIV diagnosis through their relatives before disclosure process , however; the study failed to show weather anxiety and depressive symptoms were due to disclosure of their HIV status among HIV infected children (Kuringe *et al.,* 2019) or other reasons. HIV-status disclosure, promotes adherence to ARV among HIV-infected children (Glaser, 2016). This has contributed to reduced symptoms of mental disorders which may leading to depressive symptoms (Odiachi, 2017). In Tanzania, Ramos, Turner and Rugalabamu (2018) as well as Lwidiko *et al.* (2018) found that, HIV disclosure associate with depressive symptoms, stigma, and non-antiretroviral therapy adherence. Moreover, children living with HIV are more likely to have depression symptoms compared to non-infected children.

2.3.2 HIV-Status Disclosure.

In the context of pediatric HIV, disclosure refers to a child gaining knowledge of his/her HIV status (Hayfron-benjamin, Obiri-yeboah, Ayisi-addo, Siakwa, & Mupepi, 2018). The American Academy of Pediatrics Committee (AAPC) and the WHO strongly recommend the disclosure of HIV diagnosis to older children of

school age and beyond (6-12years), on ethical and clinical grounds (Glaser, 2016). WHO recommends that children of school age should be told their HIV positive status and that younger children should be told their status incrementally to accommodate their cognitive skills and emotional maturity, in preparation for full disclosure (World Health Organization, 2011).

Globally, the disclosure rate of HIV infected children is very low as reported by scholars (Adefalu et al., 2018). Evidence from a recent systematic review show that, most children less than 18 years old living with HIV is less in developed countries, among of those countries is Sub-Saharan Africa (Nzota et al., 2015; Adefalu et al., 2018). Information from several places in other countries indicate that, between 25% and 90% of children living with HIV-infection has not been told that they are living with HIV- infection (Biadgilign et al., 2011). Also the empirical studies in other countries show that; the rate of disclosure is 28% which is very low compared to other countries (Kiula, Majapa, & Mwansisya, 2019). Another empirical study conducted in Ethiopia observed that the age of children is a factor determining disclosure process among that children (Kallem, Renner, Ghebremichael, & Paintsil, 2012). This could be due to the caregivers' beliefs that, at early age the children lack emotional and cognitive maturity to understanding the disease and its effects children (Paintsil et al., 2012) . A study conducted in Nigeria observed that most caregivers were more likely to disclose HIV-status to children when they were twelve years similar to WHO guidelines (Kallem et al., 2011).

The mean age at disclosure was 10.7 years which was high as compared to studies done in New York 7 years ago (Meena, Hemal, & Arora, 2018) and Nigeria 8.7 years (Adefalu, Florence, Issa, & Adefalu, 2016) but somewhat comparable with a study conducted in Ghana 11.7 years (Negese et al., 2012). A study conducted by Britto, Mehta, Thomas, and Shet, (2018) indicated that the proportion of fully disclosed children ranged from 1.7% to 41.0%. Furthermore the study found that partial disclosure ranged from 7.0% to 38.0%. The low rate of disclosure was reported in India, where by 33% of the children in the country were disclosed of their HIV status (Meena et al., 2018). In Ghana only 33.3% children were disclosed of their HIV status (Gyamfi, Okyere, Enoch, & Appiah-brempong, 2017). Others studies show that levels of disclosure were vary widely in developing countries

especially in Africa countries. It ranges from as low as 9% to high as 95% but with an average of 29% (Adefalu et al., 2016b; Vreeman, Scanlon, Mwangi, Turissini, & Ayaya, 2014).

Low rate of HIV disclosure is reported from other African countries such as Ghana with 17.4% and Ethiopia with 21% respectively (Kallem et al., 2012;Odiachi & Abegunde, 2016). Other countries included South Africa with 9% and in Nigeria with 13.5% (Brown, Oladokun, & Ochigbo, 2011). A study conducted by Sirikum et al., 2014 was reported that only 16.3% of HIV-infected children know their diagnosis (Sirikum et al., 2014). Additionally, similar trend of low disclosure rate was reported in Kenya with 19% of disclosure (John-Stewart, Wariua, Beima-Sofie, & Richardson, 2014). Studies conducted in Tanzania indicated variation of disclosure rate in the country. For instance, a study by Bulali et al., (2018) in Iringa and Mbeya regions reported that, only 33% of infected children knew their status. Besides a study conducted in Kilimanjaro region indicated that, only 23% of children with HIV positive were disclosed. The relationship between HIV disclosure and educational level is also an issue of discussion in literature. For-instance, Ayuk et al .,(2016) found that most children who knew their HIV status came from families with a higher socioeconomic status and education level compared to families with lower socioeconomic status and not attending in school. A study conducted in Ethiopia revealed that, illiterate caregivers were more likely to disclose the child's HIV status than caregivers with a higher educational level (Biadgilign et al., 2011). Most likely, caregivers were not aware on how to disclose the HIV-positive status to their HIV- infected children; yet they did not know when to disclose and what to tell their children (Glaser, 2016).

Most HIV-positive children including those older than nine years old remain unaware of their HIV status. This has implications on their ability to adhere to HIV treatment (Nzota et al., 2015). Disclosure among HIV-infected children is important for improving self-care behaviours, psychological well-being, commitment to the treatment, and reducing risk of transmission to other children (Glaser, 2016). One of the major benefits of disclosure is social support, which is an important means for effective coping with HIV infection , yet minimizing depressive symptoms and improving quality of life among HIV-infected children (Glaser, 2016).

Several factors have been associated with low disclosure rate among HIV infected children from their Caregivers. One study conducted in Southern Highland Zone of Tanzania showed that, age of the child, level of education of both child and caregiver were the predictors for timely disclosure (Bulali et al., 2018). Another study in Kilimanjaro Tanzania found that , fear of negative emotional consequence such as discrimination for the children and thinking that children could not keep the information secret, affected caregivers to disclose the disease to their children (Mumburi, Hamel, Philemon, Kapanda, & Msuya, 2014) .On the other hand, many caregivers delay telling children about their status, because they are anxious about the child's wellbeing, like anger, blaming parents for infecting them and are worried about stigma from the community (Odiachi, 2017).

According to Mbalinda et al., (2015), quality of life is a degree of excellence in a person's life at any given period that contribute to satisfaction and happiness of the person. It covers all social, physical, emotional, and physical parts of the individual's life. Different studies conducted in various counties revealed that; the HIV infection progress has influence on children's quality of life (Haseli et al., 2014). Other factors influencing the quality of life among HIV infected children are; social economic factors, poor adherence on medications, delayed disclosure, poor attendance in CTC clinic and opportunistic infections. Assessment of both disclosure and quality of life among HIV infected children may give valuable information about the influence of HIV status disclosure on quality of life (Gakhar et al., 2015). Bulali et al., (2018) suggest that a timely disclosure to HIV infected children helps to improve their quality of life and ART adherence. According to study conducted different countries of Africa, one study conducted by Kuntawee et al., (2010) was report some factors which affecting quality of life in HIV-infected children, were the main caregivers or biological parent death, and the late age of disclosure among infected children more than 15 years old. Also other studies were continued to report that; those caregivers who were still alive and living with their children were significantly associated with quality of life (Kuntawee et al., 2010; Gakhar et al., 2015). Interestingly result reported by Kuntawee et al., (2010) was found that, children whose parents had died had 4.19 times better quality of life than those whose parents were alive. Those children who were cared for by others like grandparents, relatives,

foster parents, had a 4.64 times better quality of life than those who were cared for by parents.

In a study conducted in Yunnan China, results showed children from HIV/AIDS-affected families reported lower scores of Health –related quality of life than those from unaffected families, especially in the psychosocial functioning, and emotional functioning domains (Xu et al., 2011). Findings indicate the child's self-esteem, the caregivers' perceived quality of life, the child's foster pattern, the average hours of company provided by the caregiver, and whether the child was informed of the parent's HIV- status are important factors influencing health related quality of life (Xu et al., 2011). Furthermore other studies was reported that, Age at disclosure decreased significantly over time, there were no statistically significant differences between pre disclosure and post disclosure and quality of life; therefore, disclosure should be encouraged at an appropriate time to influence better life among HIV-infected children (Butler, Williams, Howland, Storm, & Hutton, 2020). Study conducted in Cameroon was shown that the proper interventions, including a cognitive-behavioral group plan, follow-up after disclosure, may influencing a better quality of life among HIV infected children (Noubiap, Fang, Ntone, & Kuaban, 2013).

Many children living with HIV, experience difficult life events process that could influence their psychosocial well-being, such as losing caregivers to AIDS-related illness, stigma, shock about their status after disclosure process and not understanding the importance of adhering to treatment and diagnosis (UNSAIDS, 2013). However, provision of appropriate HIV care services to an HIV-infected children and follow-up within a short term is associated with improvement in their Health related quality of life (Motilewa et al, 2015).

2.4. Conceptual Frame Work

A conceptual framework is a guide that a researcher uses in explaining the natural of phenomena to be studied. It acts as a mediator with the concept, empirical research and important theories that are used in the study (Adom, Hussein, & Joe, 2018; Camp, 2001). The conceptual framework represents an integrated means of looking at the problem addressed by the researcher in a study (Adom et al., 2018; Camp, 2001).

Figure 1 shows the conceptual framework indicating how variables interact with one another resulting into different outcomes in the study. This study has two dependent variables (outcomes), child's depressive symptoms and child's quality of life while HIV status disclosure saves as an independent variable. In this study, three factors (history of mental illness in the family, loss of both parents, and child live with parent(s) or people other than parents) were considered to cofound the association between the dependent variables (outcomes) and the independent variables (exposure). These confounders may associate to both, the outcomes (depressive symptoms and quality of life) and the exposure (HIV status disclosure). The confounders (history of mental illness in the family, loss of both parents, and child live with parent(s) or people other than parents) associates with the outcomes (depressive symptoms and quality of life) independently of exposure (HIV status disclosure). In presence of confounding the measure of the association between HIV status disclosure and the outcomes (depressive symptoms and quality of life) in the subgroups (groups based on confounding variables) will differ from the crude measure of the association, but the measures of the association across the subgroups will be similar. Example in our case if we consider only children who lost both of their parents; the association between HIV status disclosure and depressive symptoms in that subgroup may be different from the crude association (regardless of the group) between HIV status disclosure and depressive symptoms because children who lost both of their parents may have more depressive symptoms compared to the general population of HIV infected children. Also, loss of both parents may associates with HIV status disclosure; those who lost both of their parents may be less likely to receive HIV status disclosure compared to others. The same applies to other subgroups, for example; children who have history of mental illness in the family and children who live with people other than their parents may have more depressive symptoms than the general population of HIV infected children. Also, these groups may be less likely to receive disclosure compared to the groups of children with no history of mental illness in their family and children who live with their parent(s).

By considering the fact that the association between HIV status disclosure and the outcomes of interest (depressive symptoms and quality of life) also may be affected by other factors, this study included several effect modifiers. The socio-demographic characteristics; child's sex, child's age, child's education level, caregiver's sex,

caregiver's age, caregiver's education level and caregiver's occupation were considered as effect modifiers (modifier variables). These variables were used as modifiers because the magnitude of the effect of HIV status disclosure on child's depressive symptoms or quality of life may differ depending on these variables (modifier variables). In contrast to confounding, when there is effect modifiers the measures of the association in the subgroups differ from one another. Example in our case; the association between HIV status disclosure and depressive symptoms may differ between; young children (10-12 years) compared to older children (13 – 15 years), children not in school compared to children in school, male children compared to female children, male caregivers compared to female caregivers, young caregivers compared to older caregivers, caregivers with no education compared to educated caregivers, caregivers with no employment compared to those with employment.

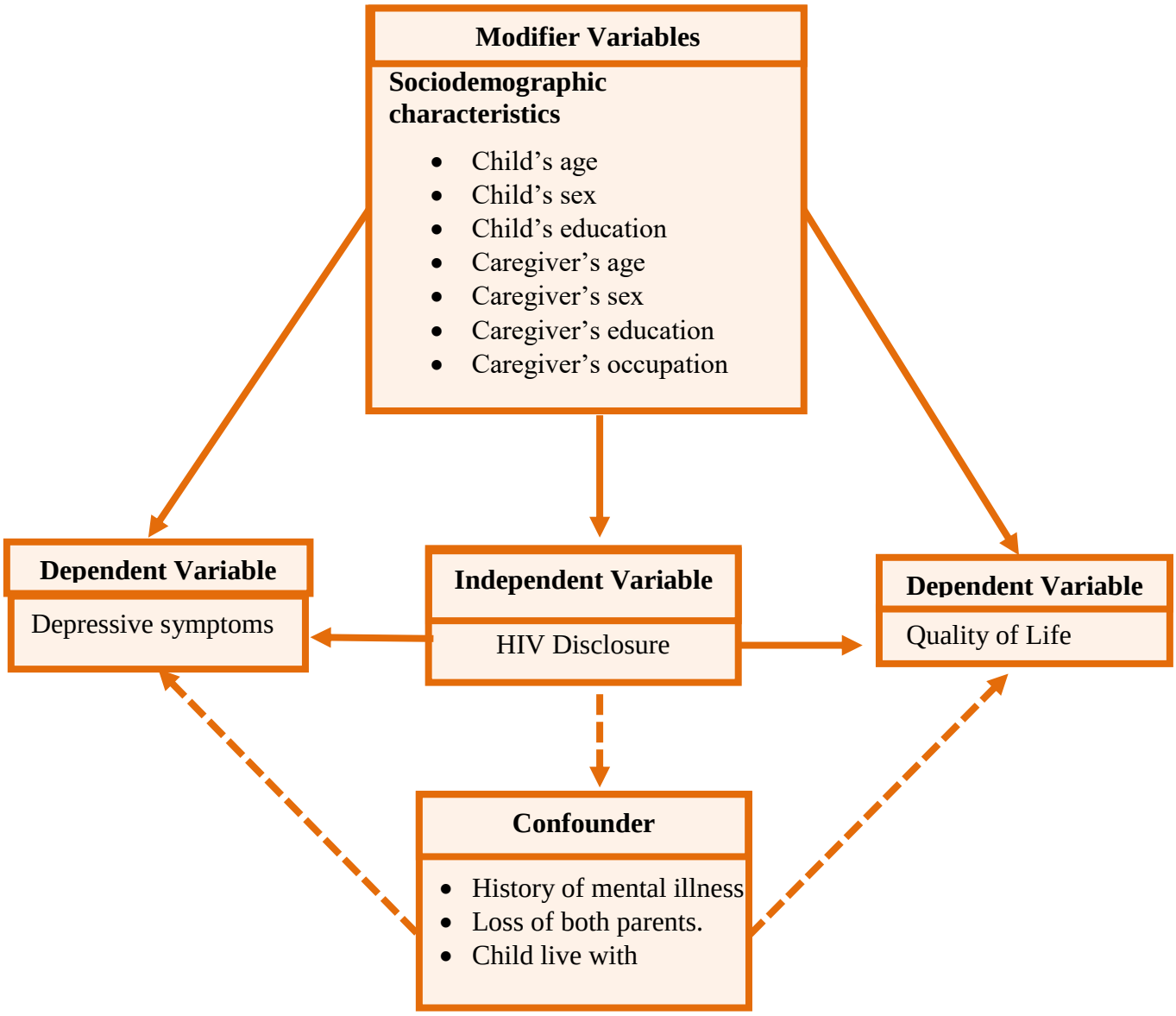


Figure 1: Conceptual Frame Work

CHAPTER THREE

3.0 METHOD AND MATERIALS

3.1 Introduction

This chapter focuses on the research methods which include: study location, research design, study population, inclusion criteria, and exclusion criteria sample size, sampling method and techniques, tools and data collection methods. The chapter also presents data collection techniques, data processing and analysis, variables and measurement, validity and reliability, dissemination of results and ethical considerations.

3.2 Location of the study

The study was conducted in paediatric HIV care and treatment centres in the Central Zone of Tanzania. Central Zone of Tanzania consists of three regions which are Dodoma, Singida and Tabora. The selection of the study area was facilitated by the fact that, the area receives little attention from researchers. This has facilitated to inadequate information about children's depressive symptoms after HIV disclosure in Central Zone. However, Singida and Dodoma regions were included in the study due to the fact that, the two regions are fast growing. The population of Dodoma and Singida is characterised with a mixture of people with different characteristics from different parts of Tanzania. There are also traders and other official workers who have moved to Dodoma and the nearby Region, Singida. These two regions are among 31 administrative regions in Tanzania. By 2017, Dodoma had a population of 2,312,141 while Singida had a population of 1,370,637. Dodoma covers an area of 41,311 square kilometers, lying between latitudes 6º north and 6º.3´ south, and Longitude 35 º.3´ west and 36.2´ east; it has 7 districts. Singida covers an area of 49,340 km square lying between latitude 5º.29´, 59º.99´ S and longitude 34º.29´, 59º.99´ E; it consists of 6 districts (National Bureau of Statistics, 2018).

3.3 Research design

The study employed quantitative research approach with cross-sectional design in assessing the influence of HIV status disclosure on depressive symptoms and quality of life among HIV infected children. In cross-section study, a researcher measures

both the exposure and outcome of interest from the study participants at the same time. In this study, the exposure was HIV disclosure while depressive symptom was considered as outcome of interest. Generally, cross sectional studies are; quick, easy, and cheap to perform and no loss to follow-up since each participant is interviewed only once(Sedgwick, 2014).

3.4 Study Population

The study population was all HIV-infected children aged from 10-15 years attending Pediatric HIV care and Treatment Centre in Central Zone of Tanzania

3.4.1 Inclusion Criteria

Caregivers must be aged 18 years and above, attending Pediatric HIV care and Treatment Centre with his/her HIV infected child/children and consented to participate in the study. A child was included in the study if he/she is HIV Infected, aged 10 to 15years, attending Pediatric HIV care and Treatment Centre and consented to participate in the study (caregiver consented on behalf of the child)

3.4.2 Exclusion Criteria

Exclusion criteria were mentally ill and serious ill caregivers as well as children.

3.5 Sample Size Estimation

Cochran formula (1977) was used to compute the sample size for this study.

$$n = \frac{z^2 pq}{e^2}$$

Where:

- n = minimal sample size
- e = the desired level of precision [marginal error 5%]

- P is the estimated proportion of HIV status disclosure. From a study conducted by Nzota, Matovu, Draper, Kisa, & Kiwanuka, (2015) in Tanzania p was estimated to be equal 32.6%.
- q = 1-p
- A 95% confidence level was used therefore Z (critical value) = 1.96.

$$\textbf{\textit{Calcuation}}: \ n = \frac{3.8416 \times 0.326(1 - 0.326)}{0.0025} = 333$$

- Including attrition rate of 10%= 10/100×333=33
- So, 333±33=366

Therefore, the sample size for the study was 366 participants.

3.6 Sampling Procedure

A Multi-stage sampling technique was used in the selection of respondents (Figure 2). There were three (3) stages in this multi-stage sampling technique. Firstly, two regional hospitals were selected purposively (one from each central zone region). Purposively selection of the central zone regions follows from the fact that the area has received very limited attention of researchers; thus, causing lack of information regarding children's HIV status disclosure, depressive symptoms and quality of life. However, only Singida and Dodoma regions were included in the study due to the fact that the two are fast growing regions with mixture of people with different characteristics from other regions in the country. In the second stage, a simple random sampling (SRS) was used to select seven district hospitals (four from Dodoma, three from Singida) and four Health centres (two from each region). Simple random sampling was carried out by preparing sampling frames (sampling frame for the district hospitals and sampling frame for the Health centres), then selecting the sampling units from the list using online random number generator. Lastly, convenient sampling was used to obtain participants from each CTC of the selected health centres; district and regional hospitals. Individuals (children together with their caregivers) who were available at the CTCs during the time of data collection and willing to participate in the study were invited and interviewed. The process continued until the required sample was obtained (Table 1).

Table 1: Distribution of sample based on Centers

	No. of Hospitals or H/C	Participants per Centre	Total
Regional Hospital	2	40	80
District Hospital	7	30	210
Health Centre	4	19	76
Total sample			366

The health care facilities from Dodoma regions were Dodoma region hospitals, Kondoa district hospitals, Bahi district hospitals, Mvumi hospital, Hombolo health centres and Makole health centres. In Singida region the facilities involved were, Singida region hospital, Mtinko district hospitals, Makiungu mission hospitals, Manyoni district hospitals, Sokoine health centre and Ikungi health centre.

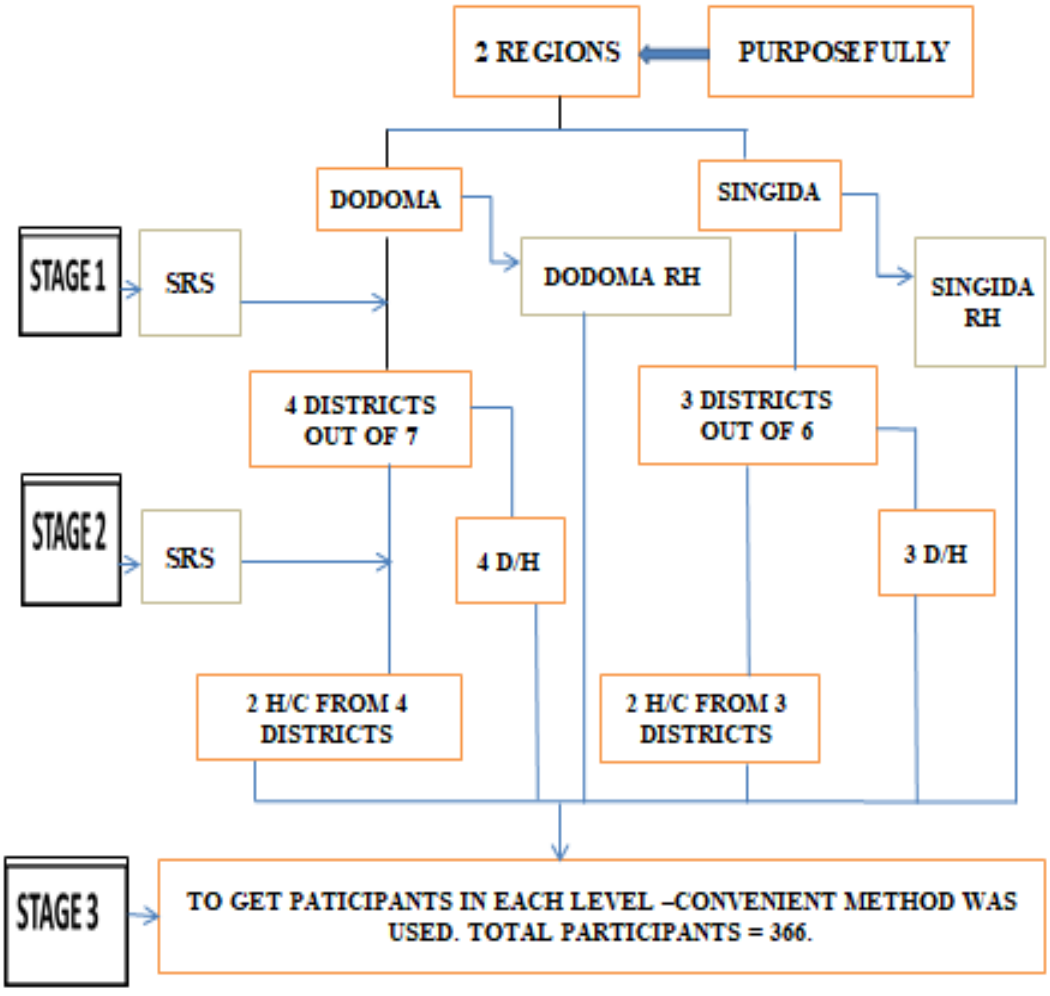


Figure 2: Multistage Sampling Procedure

3.7 Method of Data Collection

In this study data were collected through interviewer-administered questionnaire. This method is more appropriate to record data for quantitative study. Before data collection; research assistants were trained on how to administer the questionnaire. Training of research assistant was done based on ethical issues, data collection process, and familiarization of the study. Together with the principal investigator; data were collected in 4 weeks by 4 trained research assistants. Questions were elaborated and a proper way of writing the responses was demonstrated. In order to have research participants the researcher obtained information from patients' register and CTC clinic registers, pertaining to HIV infected children between 10-15 years. Assent and consent for the study was obtained from children and their caregivers respectively.

3.8 Data Collection Tool

Structured questionnaire was used in data collection. The questionnaire was divided into six sections. Section A: covered socio-demographic information of caregivers and section B covered socio-demographic information of children. Section C had questions regarding disclosure of a child while section D was about child's quality of life. Sections E and F were designed to collect information on children depressive symptoms from caregivers and children respectively. In assessing disclosure of HIV among caregivers, the study adapted and modified the questionnaire from Nzota et al., (2015). In measuring depressive symptoms, questions were adapted from Child Depressive Inventory-I for parent (CDI-Ip) and Child Depressive Inventory I for children (CDI-Is). Also this study adapted and modified some questions from Allgaier, Pietsch, and Fru, (2011) to suit the need of the study. Two questionnaires were prepared, in English and Swahili languages.

3.9 Validity

Validity is a degree to which an instrument truly measures what is supposed to be measured (Mokkink et al., 2010). The questions to assess depressive symptoms in this study were adopted from validated CDI tool (Allgaier, Pietsch, & Fru, 2011). The CDI tool was compared to a gold standard (A diagnostic interview, the Kinder-

DIPS) and the area under the curve (AUC) was estimated to be 0.94 indicating that the responses from CDI are highly valid in measuring children depressive symptoms.

3.10 Reliability

Reliability is a degree to which a measurement is free from measurement error (Mokkink et al., 2010). A reliability test was done to assess a cross-cultural adaptation of the Child Depression Inventory for use in Tanzania with children affected by HIV. It was estimated that, the alpha estimate for the CDI was equal to 0.669 which is within the range of acceptability when employing a community-based sample (Chatterji, M. 2003).

3.11 Measurements of Variables

3.11.1 Dependent Variables

In this study there were two dependent variables, child depressive symptoms and quality of life. Depressive symptoms were measured with 14 variables. These variables were measured for each group (caregivers and children). The 14 items were measured in a Likert scale with four levels (0 for "not at all", 1 for "sometimes", 2 for "often" and 3 for "most of the time"). The questions were formulated in the way that a child with more depressive symptoms would have high score and the child with less depressive symptoms would have low score. All 14 variables for measuring depressive symptoms were subjected to factor analysis in order to obtain an index variable for measuring depressive symptoms. From factor analysis a depressive symptoms index was formed. The index had two levels, no depressive symptoms and depressive symptoms. The level "No depressive symptoms" was used as a reference group in further analysis.

The variable quality of life was measured by seven variables in a Likert scale. Caregivers were required to rate their children's quality of life by responding the questions which was measured in a scale of, 1 for "very poor", 2 for "poor", 3 for "neither poor nor good" 4 for "good" and 5 for "very good". In the first variable (question), caregivers were required to rate the overall quality of life of their children. Other variables for measuring children quality of life were related to health of the child, income, opportunity to leisure, living place, availability of health

services, and means of transport. Children with scale above the mean score were considered to have high quality of life otherwise low quality of life.

3.11.2 Independent Variable

HIV disclosure was measured by asking the caregiver if the child had received disclosure or not. For disclosed children, caregivers were also asked to tell which of the following type of disclosure the child received;

1. Partial disclosure (if HIV not mention)
2. Full disclosure (if HIV mentioned)
3. Post disclosure (if full disclosure and follow-up to continue disclosure)

3.11.3 Modifier Variables

In this study, the socio-demographic characteristics; age, sex, and education level of a child, age, sex, occupation and education level of caregiver were considered as modifier variables. These variables were considered as modified variables because they may affect directly the outcome variables.

3.11.4 Confounders

Confounders are variables that associate with both, independent and dependent variables. In this study, history of mental illness was considered as a predefined confounder in the association between HIV disclosure and depressive symptoms.

3.12 Data processing and Analysis.

Data were analysed by using Statistical package for social sciences (SPSS) version 20. Before analysis, data were coded and entered in SPSS followed by data cleaning to improve the quality of the data.

3.12.1 Factor analysis for depressive symptoms

Factor analysis is a useful tool for investigating variable relationships for complex concepts such as psychological scales. With factor analysis a researcher can investigate outcomes that are not easily measured directly by combining many variables into few interpretable underlying factors. In factor analysis, one can use exploratory or confirmatory approach based on his/her interest. An exploratory factor

analysis is used to explore the inter-relationship among a group of variables while the confirmatory factor analysis is used to test specific hypotheses or theories regarding the structure of the underlying unobserved factors. In this study the exploratory factor analysis was considered appropriate to explore the relationship among a set of variables measuring depressive symptoms of HIV infected children. The factor analysis involved the following 14 items on depressive symptoms; negative mood, sadness, crying, irritable, lonely, not like to play with friends, doesn't like school, staying alone, not enjoying food, doesn't like relatives, doesn't like to play as usual, sleeping more than usual, stomach ache, and getting tired. Factor analysis was performed to identify the factors which explain the depressive symptoms by combining the observed responses from the 14 items. To determine whether the data were suitable for factor analysis, a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test for testing strength of correlation among variables was performed.

The KMO value greater than 0.5, indicates high sampling adequacy for factor analysis (Kaiser, 1970). In the Bartlett's test of sphericity, the null hypothesis is that, "There is no correlation among variables while the alternative hypothesis is "There is correlation among variables" (Field, 2009). In factor analysis, communalities give information on how much variance in each item is explained by the factor (Field, 2005). A communality value less than 0.3 may indicate that the respective item does not fit well with other items in its factor. Variables with communality less than 0.3 may be removed during factor analysis. In our study, all variables had communalities greater than 0.3 therefore none was removed in factor analysis.

3.12.2 Factor extraction

There are different methods one can use in factor extraction. Principal component factor analysis, unweight least squares, generalized least squares, maximum likelihood, principle axis factoring, alpha factoring, and imaging factoring are some of those methods. This study, used principle component which is the most commonly used method. Rotation was also performed during factor analysis. Rotation tends to optimize the factor structure and the relative importance of the factors is equalized. In rotation, Varimax method was used and this kind of rotation maximizes the sum of squared loadings which are squared correlation between the variables and the factors.

Eigenvalues were used in identifying the number of components (factors). Eigenvalues measure how much of the variability of the observed variables is explained by a factor. Components with Eigenvalues of 1.0 and above were considered as identified factors (factors which explain most of the variability). Factor loadings were used as method of reducing the items (variables) in the factor using a cut-off point of 0.3 (variables with loadings less than 0.3 in a factor were considered not to correlate with that factor).

3.12.3 Depressive symptoms index

The first factor which explained most of the variability was used to compute an index for depressive symptoms. The factor scores were obtained by taking observed mean score of the items loading in the corresponding factor. A half of the maximum possible sum of scores was used as a cut-off point to determine if a child had depressive symptoms or not. Children with mean score of 3 and above were considered to have depressive symptoms otherwise no depressive symptoms.

3.12.4 Descriptive analysis

To get an insight of the data, descriptive analysis of socio-demographic characteristics was performed. Descriptive analysis of the independent variable (HIV disclosure) and dependent variable (depressive symptoms and quality of life) were also performed. Results from descriptive analysis were presented using tables and figures. Through descriptive analysis of depressive symptoms, the first objective ("Assess the quality of life among HIV infected children in Central Zone") and the second objective ("Assessing prevalence of depressive symptoms among HIV infected children in Central Zone") of this study were answered. Results from descriptive analysis of the independent variable (HIV disclosure) were useful in answering the third objective of this study ("Assessing HIV status disclosure among HIV infected children in Central Zone"). The rest objectives (the fourth up to the seventh objective) of assessing the association between children's/caregivers' selected characteristics and depressive symptoms/quality of life were answered by performing a Chi-square test and a logistic regression analysis.

3.12.5 Logistic regression

The association between binary outcome and any other variables were assessed using logistic regression. A crude association between the outcome (dependent variable) and any of the independent variable was obtained by just considering two variables (the dependent and one independent variable) in the logistic regression. A multivariable logistic regression was performed to obtain the adjusted association between the outcome of interest and the independent variables. In this study, all the test were considered statistically significant at 5% level of significance (p-value<0.05).

3.13 Ethical Consideration

The study was approved by the University of Dodoma Institutional Research Review Board. Permissions to conduct the study at region and district level were obtained from the Regional Administrative Secretary (RAS) and District Administrative Secretary (DAS) of the respective region. At hospital level, permissions were given by the Hospital Directors and Medical officer in-charge. Participants were well informed on the aim, risks and benefits of the study before participation. A free informed consent written or verbal was obtained from each individual participant at the start of the study. Participants were told that their names would not be written anywhere to ensure confidentiality. Ethical issues were highly observed so as to ensure that human rights and country's policies were followed by the researcher. The researcher observed all rules and regulations during the whole process of the research in the field.

3.14 Dissemination of Results

Dissemination means communicating scientific results, methods and values from specialized research fields to people outside the disciplines (NNCRE, 2016). The findings of this study will be disseminated to the following area: The University of Dodoma, College of Health Sciences Department of Nursing and Midwifery to publish research in nursing journals, and to disseminate copy of this research in the library of The University of Dodoma.

CHAPTER FOUR

4.0 RESULT AND DISCUSSION

4.1 Overview

This chapter presents and discusses the findings from the study conducted in central zone of Tanzania on assessing the influence of HIV status disclosure on depressive symptoms and quality of life among HV- infected children aged 10-15 years. The analysis was based on seven objectives. Results obtained from the study were organized and presented starting with demographic information from respondents (caregivers and children) followed by presentation of data based on the specific objectives of the study as follows; the disclosure status among HIV-Infected children, the prevalence of depressive symptoms among HIV-infected children, association between children's selected characteristics and depressive symptoms among HIV infected children, association between caregivers' selected characteristics and depressive symptoms among HIV infected children, quality of life among HIV infected children, association between children's selected characteristics and quality of life among HIV infected children, and association between caregivers' selected characteristics and quality of life among HIV infected children in Central Zone.

4.2 Socio-demographic characteristics of participants

A total of 366 HIV-Infected children, together with their caregivers attending CTC in central zone of Tanzania were studied.

4.2.1 Socio-demographic characteristics of HIV-Infected children

Table 2 shows the socio-demographic characteristics of HIV infected children. Out of 366 children involved in this study 220 (60.11%) were male and 146 (39.89%) were female. Children of age 10 – 12 years were 280 (76.50%) while children of age 13 – 15 years were 86 (23.50%). With regards to education level, majority of the children were at primary or nursery school 324 (88.53%), 19 (5.19%) were not in school and the rest 23 (6.28%) were at secondary school level. Children with at least one parent alive were 248 (67.76%) while children who had no any parent alive were

118 (32.24%). Among 366 children, 228 (%62.30) were living with at least one parent while 138 (37.70%) were living with people other than their parents.

Table 2: Socio-demographic characteristics of children (N=366).

Characteristics	Frequency	Percent
Sex of a child		
Male	220	60.11
Female	146	39.89
Age of a child		
10 – 12 years	280	76.50
13 – 15 years	86	23.50
Child education		
Not in school	19	5.19
Primary or less	324	88.53
Secondary	23	6.28
Loss of both parents		
Yes	118	32.24
No	248	67.76
Child living with		
Parent (s)	228	62.30
Other people	138	37.70

4.2.2 Socio-demographic characteristics of caregivers

Table 3 shows the socio-demographic characteristics of caregivers. Among 366 caregivers involved in this study, 125 (34.15%) were male while 241 (65.85%) were female. With regards to age, 115 (31.42%) caregivers were 39 years old or below, 200 (54.65%) were 40 – 59 years old while 51 (13.93%) were 60 years old or above. Majority of caregivers had primary school education 229 (62.57%), other 88 (24.04%) caregivers had not attended school and the rest 49 (13.39%) caregivers had secondary school education or above. About 44 (12.02%) caregivers had no employment while 322 (87.98%) had employment.

Table 3: Socio-demographic characteristics of caregivers (N=366).

Characteristics	Frequency	Percent
Sex of caregiver		
Male	125	34.15
Female	241	65.85
Age of caregiver		
39 years or below	115	31.42
40 - 59 years	200	54.65
60+ years	51	13.93
Caregiver education		
Never attended school	88	24.04
Primary school	229	62.57
Secondary school and above	49	13.39
Caregiver occupation		
Not employment	44	12.02
Employment	322	87.98

4.3 Disclosure status among HIV-Infected children

Among 366 children involved in this study, 219 (59.84%) had HIV disclosure while 147 (40.16%) children had no disclosure. Majority of children with disclosure, 165(75.34%) were disclosed due to health-care providers' advice, 25 (11.42%) children were disclosed because their caregivers believed that they were old enough, while 16 (7.31%) children were disclosed due to family advice. Other children were disclosed due to poor adherence of ARVs 7 (3.20%), low CD_4 4 (1.83%) and opportunistic infections 2 (0.91%). Figure 3, shows distribution of children based on reasons to disclose.

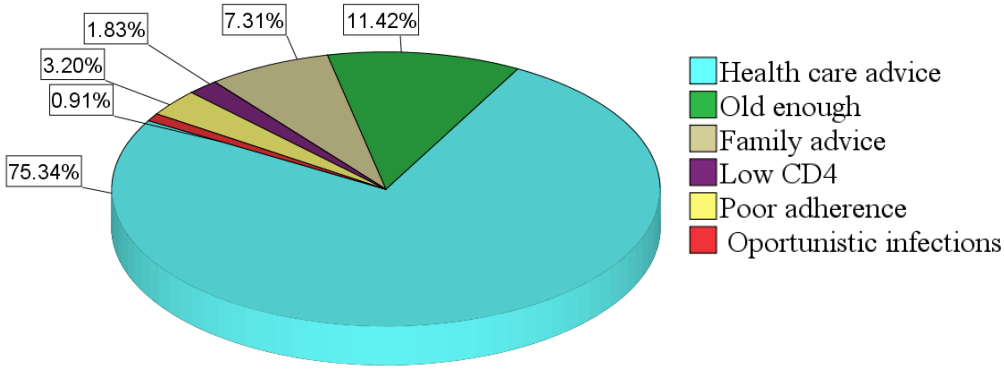


Figure 3: Percent of children based on reasons to disclose.

4.3.1 Reasons for not disclosing the HIV status to children

Out of 147 non-disclosed children, 46 (31.29%) were not disclosed out of fear of negative reaction, 45 (30.61%) children due to fear of psychological disturbance, 10 (6.80%) children out of fear of stigma, and 46 (31.29%) children were not disclosed because caregivers were afraid that disclosing may hurt their children (Figure 4).

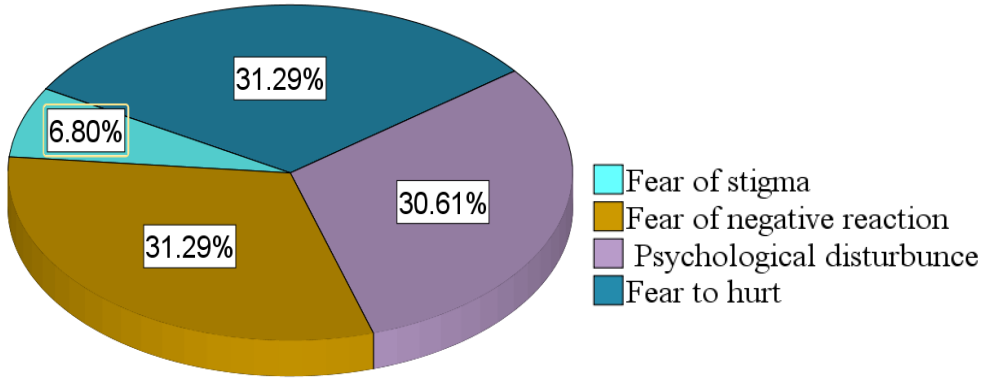


Figure 4: Reasons for not disclosing the HIV status to children

4.3.2 Plan to disclose the HIV status

Among 147 caregivers whose children were not disclosed, 19 (12.93%) had a plan to disclose when the age of their children is between 12 - 14 years, while 71 (48.30%) and 57 (38.78%) caregivers had a plan to disclose at age of 15 – 17 and 18 – 20 years respectively.

4.3.3 Caregivers involvement in HIV status disclosure

Results show that, only 55 (15.03%) caregivers had ever been involved in the process of HIV disclosure to children while 311(84.97%) had never been involved in the process (Figure 5).

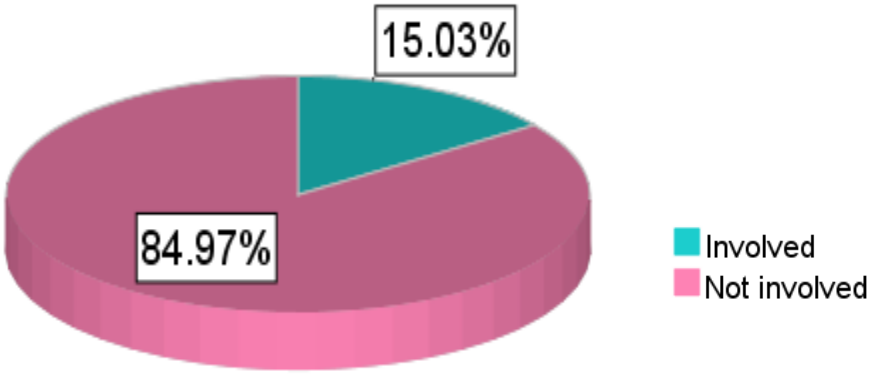


Figure 5: Caregivers involvement in HIV status disclosure

4.3.4 The relationship between socio-demographic characteristics and caregivers involvement in HIV disclosure.

In the cross tabulation, no variable (caregivers' characteristic) which showed significant relationship with their involvement in disclosure process (Table 4).

Table 4: The relationship between socio-demographic characteristics and caregivers involvement in disclosure process

Characteristics	Involved n (%)	Not involved n (%)	X^2	P-value
Sex of caregiver			0.738	0.390
Male	16 (12.80)	109 (87.20)		
Female	39 (16.18)	202 (83.82)		
Age of caregiver			0.993	0.609
39 years and below	16 (13.91)	99 (86.09)		
40 - 59 years	29 (14.50)	171 (85.50)		
60+ years	10 (19.61)	41 (80.39)		
Caregiver education			3.992	0.136
Never attended school	19 (21.59)	69 (78.41)		
Primary education	29 (12.66)	200 (87.34)		
Secondary and above	7 (14.29)	42 (85.71)		

4.3.5 Type of disclosure

Among 219 children who had HIV disclosure, percent of children with full disclosure (72.15%) was higher compared to children with partial (16.89%) and post disclosure (10.96%). Table 5 presents the characteristics of children during disclosure by disclosure type. Results from a chi-square test show that, there was a significant association between age at disclosure and type of disclosure a child received (p-value = 0.002). Children of age 8 – 10 years were more likely to have partial-disclosure compared to children of age 11 – 14 years while children of age 11 – 14 years were more likely to have either full or post-disclosure than children of age 8 – 10 years. The association between health of the child during disclosure and type of disclosure was statistically not significant (p-value = 0.166).

Table 5: Characteristics of children during disclosure by disclosure type (N=219)

Characteristics	Type of disclosure			X^2	P-value
	Partial n (%)	Full n (%)	Post n (%)		
Age at disclosure				12.79	0.002
8 – 10 years	28 (25.23)	75 (67.57)	8 (7.20)		
11 – 14 years	9 (8.33)	83 (76.85)	16 (14.81)		
Health at disclosure				3.593	0.166
Ill	3 (10.00)	21 (70.00)	6 (20.00)		
Not ill	34 (17.99)	137 (72.49)	18 (9.52)		

Table 6 presents the characteristics of caregivers by children disclosure type. Based on a chi-square test, it was found that; age of caregivers had a significant association with a type of disclosure the children received (p-value = 0.037). Children whose caregivers' age were 40 years and above were more likely to receive post disclosure compared to children with caregivers of age 39 years and below. Only 1.39% of children whose caregivers aged 39 years and below received post disclosure. Results also show that; sex, level of education and employment status of caregivers did not have significant association with type of disclosure children received (p-value of 0.624, 0.366 and 0.085 respectively).

Table 6: Characteristics of caregivers by children disclosure type (N=219)

Characteristics	Type of disclosure			X^2	P-value
	Partial n (%)	Full n (%)	Post n (%)		
Sex of caregiver				0.942	0.624
Male	11 (14.86)	53 (71.62)	10 (13.51)		
Female	26 (17.93)	105 (72.41)	14 (9.66)		
Age of caregiver				10.242	0.037
39 years and below	14 (19.44)	57 (79.17)	1 (1.39)		
40 - 59 years	19 (15.97)	81 (68.07)	19 (15.97)		
60+ years	4 (14.29)	20 (71.43)	4 (14.29)		
Caregiver education				2.012	0.366
Primary or less	31 (16.15)	138 (71.88)	23 (11.98)		
Secondary and above	6 (22.22)	20 (74.15)	24 (10.96)		
Caregiver employment				4.929	0.085
No employment	9 (31.03)	18 (62.07)	2 (6.90)		
Employment	28 (14.74)	140 (73.68)	22 (11.58)		

4.3.6 Factors associated with disclosure among HIV infected children.

Both, chi-square test and the logistic regression analysis were used to identify factors associating with HIV disclosure.

Table 7, presents the results of children selected characteristics by disclosure status. Results from Chi-square test shows that, children characteristics which had significant association with disclosure status were; age of a child ($p<0.001$), and child's education level ($p=0.024$).

Table 7: Children selected characteristics by HIV disclosure status (N=366).

Characteristics	Disclosed n (%)	Non-disclosed n (%)	X^2	P-value
Sex of a child			0.330	0.565
Male	129 (58.64)	91 (41.36)		
Female	90 (61.64)	56 (38.36)		
Age of a child			35.049	< 0.001
10 – 12 years	144 (51.43)	136 (48.57)		
13 – 15 years	75 (87.21)	11 (12.79)		
Child education			7.494	0.024
Not in school	8(42.11)	11(57.89)		
Primary/Nursery	192 (59.26)	132 (40.74)		
Secondary school	19 (82.61)	4 (17.39)		
Loss of both parents?			1.104	0.293
Yes	66 (55.93)	52 (44.07)		
No	153 (61.69)	95 (38.31)		
Child living with			0.009	0.925
Parent(s)	136 (59.65)	92 (40.35)		
Other people	83 (60.14)	55 (39.86)		

Table 8, presents the results of logistic regression analysis for assessing the association between children selected characteristics and HIV disclosure. Both, crude and adjusted association estimates show a significant association between child age and disclosure status (p-value of 0.001 and <0.001 for un-adjusted and adjusted association respectively) however the estimate for adjusted association is somewhat higher than that of crude association (OR = 1.387 and AOR = 2.464).This means that, the odds to have disclosure increases by 2.464 times when age of a child increases by one year, keeping other characteristics constant. With regards to child education, it was found that; secondary school children had higher odds to be disclosed compared to children not in school (OR = 6.531, 95% CI of 1.592, 26.788). However the association was not statistically significant after adjusting for other characteristics (AOR = 1.467, 95% CI of 0.291, 7.394).

Table 8: Logistic regression analysis for the association between children selected characteristics and HIV disclosure (N=366).

Characteristics	OR(95% CI)	P-value	AOR(95% CI)	P-value
Sex of child				
Male	Ref	-	-	-
Female	1.134(0.739,1.740)	0.566	0.995(0.602,1.645)	0.986
Age of the child	1.387(1.921,2.967)	0.001	2.464 (1.955,3.106)	<0.001
Child education				
Not in school	Ref.	-	-	-
Primary/Nursery	2 (0.783,5.106)	0.147	1.630 (0.582,4.564)	0.353
Secondary school	6.531(1.592,26.788)	0.009	1.467 (0.291,7.394)	0.642
Loss of both parents				
Yes	Ref.	-	-	-
No	1.269(0.814,1.979)	0.294	3.954(0.984,15.882)	0.053
Child live with				
Other people	Ref	-	-	-
Parent(s)	0.980(0.636,1.508)	0.925	0.286(0.737,1.111)	0.071

Table 9, presents the results of caregiver selected characteristics by children HIV disclosure. Results from a chi-square test show no significant association between caregivers selected characteristics and children HIV disclosure.

Table 9: Caregivers selected characteristics by children HIV disclosure (N=366).

Characteristics	Disclosed n (%)	Not disclosed n (%)	X^2	P-value
Sex of caregiver			0.032	0.858
Male	74(59.20)	51(40.80)		
Female	145(60.17)	96(39.83)		
Age of caregiver			0.894	0.640
39 years and below	72(62.61)	43 (37.39)		
40 - 59 years	119 (59.50)	81 (40.50)		

60+ years	28 (54.90)	23 (45.10)		
Caregiver education			0.528	0.468
Primary school or less	192(60.57)	125(39.43)		
Secondary and above	27(55.10)	22(44.90)		
Caregiver occupation			0.768	0.381
Not employment	29 (65.91)	15 (34.09)		
Employment	190 (59.01)	132 (40.99)		

Table 10, presents the results of logistic regression analysis for assessing the association between caregivers selected characteristics and children HIV disclosure. Results from the logistic regression analysis show no significant association between caregivers selected characteristics and children HIV disclosure,

Table 10: Logistic regression analysis for the association between caregivers selected characteristics and children HIV disclosure (N=366).

Characteristics	OR(95% CI)	P-value	AOR(95% CI)	P-value
Sex of caregiver				
Male	Ref	-	-	-
Female	1.041(0.670,1.617)	0.858	0.952(0.557,1.625)	0.856
Age of the caregiver	1.996(0.977,1.015)	0.683	0.983(0.958,1.008)	0.185
Caregiver education				
Primary or less	Ref.	-	-	-
Secondary & above	0.799(0.436,1.465)	0.468	0.570(0.274,1.187)	0.133
Caregiver occupation				
Not employment	Ref.	-	-	
Employment	0.745(0.384,1.442)	0.382	0.765(0.345, 1.695)	0.509

4.4 Depressive symptoms among HIV infected children

Table 11 shows the distribution of variables involved in measuring depressive symptoms from the 14 items used to measure children depressive symptoms. Before factor analysis the responses were in four scales, “Not at all”, “Sometimes”, “Often” and “Most of the times”. In all items except one item (don’t like relatives), the most occurring response was sometimes. This means that most of children were

experiencing the symptoms for sometimes. In the item "don't like relatives", the response "Not at all" dominated more (59.30%) than other responses. In all items, the least occurring response was "Most of the times"; this means that, few children were experiencing the depressive symptoms for most of the times.

Table 11: Distribution of variables involved in measuring depressive symptoms

	Responses			
Symptoms	Not at all	Sometimes	Often	Most of the time
Negative mood	146 (39.90%)	176 (48.10%)	41 (11.20%)	3 (0.80%)
Sadness	114 (31.10%)	169 (46.20%)	77 (21.00%)	6 (1.60%)
Crying	119 (32.50%)	167 (45.60%)	77 (21.00%)	3 (0.80%)
Irritable	79 (21.60%)	184 (50.30%)	97 (26.50%)	6 (1.60%)
Lonely	77 (21.00%)	169 (46.20%)	108 (29.5%)	12 (3.30%)
Don't like to play with friends	79 (21.60%)	172 (47.00%)	95 (26.00%)	20 (5.50%)
Don't like school	147 (40.20%)	157 (42.90%)	56 (15.30%)	6 (1.60%)
Stay alone	84 (23.00%)	140 (38.30%	123 (33.6%)	19 (5.20%)
Don't enjoy food	109 (29.60%)	147 (40.20%)	93 (25.40%)	17 (4.60%)
Don't like relative	217 (59.30%)	87 (23.80%)	60 (16.40%)	2 (0.50%)
Don't play as usual	96 (26.20%)	204 (55.70%)	59 (16.10%)	7 (1.90%)
Sleep too much	89 (24.30%)	212 (57.90%)	62 (16.90%)	3 (0.80%)
Stomach ache	106 (29.00%)	144 (39.30%)	105 (28.7%)	11 (3.00%)
Tired	70 (19.10%)	152(41.50%)	127 (34.7%)	17 (4.60%)

4.4.1 Factor analysis for depressive symptoms

KMO value of 0.832 was obtained indicating high sampling adequacy for factor analysis. The p-value for Bartlett's test was <0.001 implying that there was correlation among the 14 items. All items had communalities greater than the cut-off point of 0.3. The communalities ranged between 0.328 and 0.658. From the 14 items, three factors were extracted (factors with Eigenvalues of 1.0 and above). The three factors explained about 49.52% of the total variance. The first factor explained most of the variability (31.27%) compared to other factors.

The second and third factors accounted for 9.79% and 8.46% of the total variance respectively. Results from factor analysis show that out of 14 items, 7 items were loading at the first factor (they have factor loadings of greater than 0.3). The seven items making the first factor are; Lonely, don't like to play with friends, like to stay alone, Feel irritable, feel stomach ache, don't enjoy food, and don't like school. The items; negative mood, sadness, crying, don't like relatives, don't play as usual, sleep too much and tired had factor loadings of less than 0.3 in the first factor therefore were not part of the first factor.

4.4.2 Prevalence of depressive symptoms among HIV infected children

After performing the factor analysis; the first factor was used to form a depressive symptoms index, then the index was used in assessing the prevalence of depressive symptoms among HIV infected children. Based on the index, it was estimated that 51.09% of HIV infected children had depressive symptoms while 48.91% had no depressive symptoms.

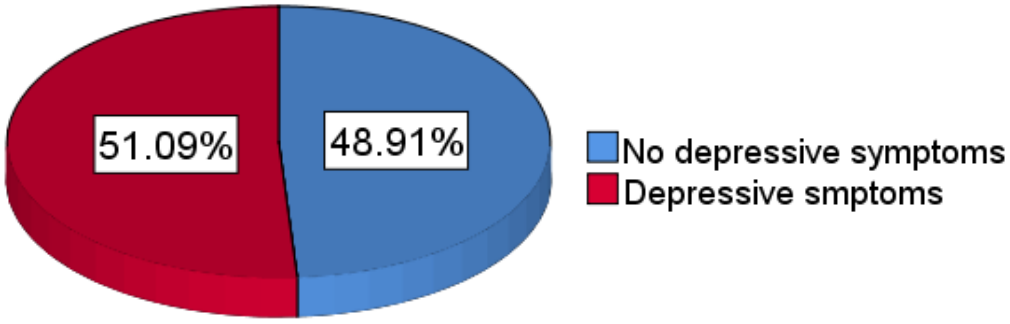


Figure 6: Prevalence of depressive symptoms.

4.4.3 Factors associating with depressive symptoms of HIV infected children in Central Zone

To identify factors associating with depressive symptoms, chi-square test and the logistic regression analysis were used. The following factors were considered in assessing their association with depressive symptoms of HIV infected children; HIV status disclosure, child's sex, child's education level, loss of both parents, child live with parent(s) or people other than parents, caregiver's sex, caregiver's age, caregiver's education level, and caregiver's occupation. Table 12 presents the results of children selected characteristics by depressive symptoms. Results from a chi-

square test show a significant association between HIV disclosure and children depressive symptoms (P-value = 0.002).

Table 12: Children selected characteristics by depressive symptoms (N=366).

Characteristics	No depressive n (%)	Depressive n (%)	X^2	P-value
Disclosure status			15.103	0.002
No disclosure	88(59.86)	59(40.14)		
Partial disclosure	20(54.05)	17(45.95)		
Full disclosure	60(37.97)	98(62.03)		
Post disclosure	11(45.83)	13(54.17)		
Sex of child			0.008	0.931
Male	108(49.09)	112(50.91)		
Female	71(48.63)	75(51.37)		
Child's education level			4.714	0.095
Not in school	12(63.16)	7(36.84)		
Primary or Nursery	160(49.38)	164(69.57)		
Secondary school	7(30.43)	16(50.62)		
Loss of both parents			1.400	0.237
Yes	116(46.77)	132(53.23)		
No	63(53.39)	55(46.61)		
Child live with			0.293	0.588
Other people	70(50.72)	68(49.28)		
Parent(s)	109(47.81)	119(52.19)		

Table 13 presents the results of logistic regression analysis for assessing the association between children selected characteristics and depressive symptoms. Results from the logistic regression analysis show a significant association between HIV disclosure and children depressive symptoms. The estimates of crude and adjusted association between children selected characteristics and depressive symptoms are similar. Results show that for children with the same characteristics other than disclosure, the odds to have depressive symptoms for the children with partial disclosure is 1.263 times higher (95% CI of 0.598, 2.668) compared to

children with no disclosure, however the difference was not statistically significant (p-value = 0.540). The odds to have depressive symptoms for the children with full disclosure was 2.362 times higher (95% CI of 1.380, 4.043) compared to children with no disclosure. The difference between children with full disclosure and those with no disclosure was statistically significant with a p-value of less than 0.002. The odds to have depressive symptoms for the children with post disclosure was found to be higher than the odds for non-disclosed children, 1.529 times higher (95% CI of 0.589, 3.965) however the difference was not statistically significant.

Table 13: Logistic regression analysis for the association between children selected characteristics and depressive symptoms (N=366).

Characteristics	OR(95% CI)	P-value	AOR(95% CI)	P-value
Disclosure status				
No disclosure	Ref.	-	-	-
Partial disclosure	1.268 (0.614,2.620)	0.522	1.263 (0.598,2.668)	0.540
Full disclosure	2.436 (1.537,3.861)	<0.001	2.362 (1.380,4.043)	0.002
Post disclosure	1.763 (0.740,4.199)	0.201	1.529 (0.601,4.075)	0.358
Sex of child				
Male	Ref	-	-	-
Female	1.019(0.670,1.548)	0.931	1.026(0.659,1.160)	0.910
Age of the child	1.155(0.994,1.342)	0.060	0.973 (0.806,1.175)	0.780
Child education				
Not in school	Ref.	-	-	-
Primary/Nursery	1.757(0.675,4.577)	0.248	1.549 (0.568,4.227)	0.393
Secondary school	3.918(1.081,14.200)	0.038	3.162 (.688,12.545)	0.102
Loss of both parents				
Yes	Ref.	-	-	-
No	1.303(0.849,2.023)	0.237	1.662(0.594,4.649)	0.333
Child live with				
Other people	Ref	-	-	-
Parent(s)	1,124(0.736,1.716)	0.588	0.754(0.279,2.035)	0.577

Table 14 presents the results of caregiver selected characteristics by depressive symptoms. Results from a chi-square test show no significant association between caregivers selected characteristics and children depressive symptoms.

Table 14: Caregivers selected characteristics by children depressive symptoms (N=366).

Characteristics	No depressive n (%)	Depressive n (%)	X^2	P-value
Sex of caregiver			3.17	0.073
Male	53 (42.40)	72 (57.60)		
Female	126 (52.28)	115 (47.72)		
Age of caregiver			0.044	0.218
39 years and below	58 (50.43)	57 (49.57)		
40 - 59 years	91 (45.50)	109 (54.50)		
60+ years	30 (58.82)	21 (41.18)		
Caregiver education			1.536	0.215
Primary school or less	151 (47.63)	166 (52.37)		
Secondary and above	28 (57.14)	21 (42.86)		
Caregiver occupation			0.024	0.877
Not employment	22 (50.00)	22 (50.00)		
Employment	157 (48.76)	165 (51.24)		

Table 15, presents the results of logistic regression analysis for assessing the association between caregivers selected characteristics and depressive symptoms. Results from the logistic regression analysis show no significant association between caregivers selected characteristics and children depressive symptoms.

Table 15: Logistic regression analysis for the association between caregivers selected characteristics and children depressive symptoms (N=366).

Characteristics	OR(95% CI)	P-value	AOR(95% CI)	P-value
Sex of caregiver				
Male	Ref	-	-	-
Female	0.672(0.435,1.039)	0.074	0.627(0.390,1.006)	0.053
Age of the caregiver	1.000(0.981,1.019)	0.965	0.996(0.974,1.019)	0.772
Caregiver education				
Primary or less	Ref.	-	-	-
Secondary & above	0.682(0.372,1.252)	0.217	0.646(0.333,1.251)	0.195
Caregiver occupation				
Not employment	Ref.	-	-	
Employment	1.051(0.560,1.973)	0.877	1.042(0.531, 2.041)	0.905

4.5 Quality of life among HIV infected children in Central Zone.

Table 16 shows the distribution of variables involved in measuring quality of life. Results show that majority had poor quality of life (50%). With regards to children health, majority had average health status, neither good nor poor (49.2%). More than a half of children were from poor income family (54.1%). Most of children had opportunity to leisure activities (74%). About 63.9% of children were receiving good health services. With regards to means of transport, 60.3% of them had poor means of transport (25.1% had poor and 35.2% had very poor means of transport).

Table 16: Distribution of variables involved in measuring quality of life

	Responses				
Variable	**Very poor**	**Poor**	**Neither poor nor good**	**Good**	**Very good**
Overall quality of life	18 (4.9%)	183(50.0%)	78 (21.30%)	86 (23.5%)	1 (0.3%)
Health	3 (0.8%)	18 (4.9%)	180 (49.2%)	161 (44.0%)	4 (1.1%)
Income	52 (14.2%)	198 (54.1%)	87 (23.8%)	23 (6.3%)	6 (1.6%)
Opportunity to leisure	6 (1.6%)	18 (4.9%)	71 (19.4%)	231 (63.1%)	40 (10.9%)
Living place	46 (12.6%)	84 (23.0%)	142 (38.8%)	93 (25.4%)	1 (0.3%)
Health services	7 (1.9%)	7 (1.9%)	30 (8.2%)	234 (63.9%)	88 (24.0%)
Means of transport	92 (25.1%)	129 (35.2%)	107 (29.2%)	31 (8.5%)	7 (1.9%)

Based on the mean score on rating the overall children's quality of life, it was found that, 201 (54.92%) children had a low quality of life and 165 (45.08%) children had a high quality of life (Figure 7).

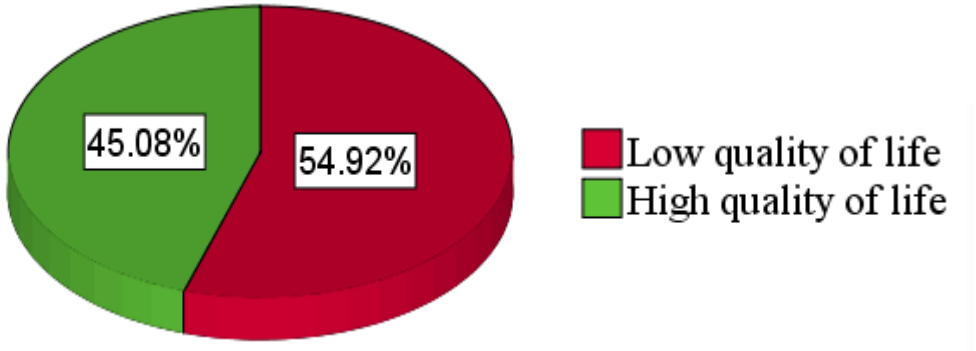


Figure 7: Distribution of children by quality of life

4.5.1 Factors associating with quality of life among HIV infected children.

Both, chi-square test and the logistic regression analysis were used to identify factors associating with children quality of life. Table 17, presents the results of children selected characteristics by quality of life. Results from a chi-square test show no significant association between children selected characteristics and quality of life.

Table 17: Children selected characteristics by quality of life (N=366).

Characteristics	Quality of life			
	Low	High		
	n (%)	n (%)	X^2	P-value
Child disclosed			0.237	0.627
Yes	118 (53.88)	101 (46.12)		
No	83 (56.46)	64 (43.54)		
Child sex			0.219	0.640
Male	123 (55.91)	97 (44.09)		
Female	78 (53.42)	68 (46.58)		
Age of a child			0.036	0.849
10 – 12 years	153 (54.64)	117 (45.36)		
13 – 15 years	48 (55.81)	38 (44.19)		
Child education			4.312	0.116
Not in school	12 (63.16)	7 (36.84)		
Primary or Nursery	172 (53.09)	152 (46.91)		
Secondary school	17 (73.91)	6 (26.09)		
Loss of both parents			2.616	0.106
Yes	72 (61.02)	46 (38.98)		
No	129 (52.02)	119 (47.98)		
Child live with			0.834	0.361
Other people	80 (57.97)	58 (42.03)		
Parent(s)	121 (53.07)	107 (46.93)		

Table 18 presents the results of caregivers selected characteristics by children quality of life. Results from a chi-square test show no significant association between caregivers selected characteristics and children quality of life.

Table 18: Caregivers selected characteristics by children quality of life (N=366).

Characteristics	Quality of life			
	Low	High		
	n (%)	n (%)	X^2	P-value
Sex of caregiver			1.406	0.236
Male	74 (59.20)	51 (40.80)		
Female	127 (52.70)	114 (47.30)		
Age of caregiver			4.519	0.104
39 years and below	60 (52.17)	55 (47.83)		
40 - 59 years	106 (53.00)	94 (47.00)		
60+ years	35 (68.63)	16 (31.37)		
Caregiver education			2.991	0.224
Never attended school	55 (62.50)	33 (37.50)		
Primary education	122 (53.28)	107 (46.72)		
Secondary and above	24 (48.98)	25 (51.02)		
Caregiver occupation			2.440	0.118
No employment	29 (65.91)	15 (34.09)		
Employment	172 (53.42)	150 (46.58)		

4.6 Discussion

4.6.1 Overview

The general objective of this study was to assess the influence of HIV status disclosure on depressive symptoms and quality of life among HIV- Infected children in central zone. The study had seven specific objectives, which were to assess disclosure status among HIV infected children, to assess the prevalence of depressive symptoms among HIV infected children, to assess the quality of life of HIV infected children, to assess the association between children selected characteristics and depressive symptoms among HIV infected children, and to assess the association between children selected characteristics and quality of life among HIV infected children. This chapter focuses on discussing the results of the study basing on the objectives.

4.6.2 Disclosure status among HIV infected children

From the study, it was found that about 59.84% of HIV infected children had disclosure. This rate of disclosure is within the disclosure rate of 13% to 60% in HIV-infected children between 5 to 17 years from study conducted in Southern-Eastern Africa (Kallem et al., 2011). With regards to age, it was found that the older the children the more likely they are to be disclosed, disclosure rates were 51.43% and 87.21% for children aged 10 -12 years and 13 – 15 years respectively. This may be due to the fact that, as age increases children start exercising self-reliance with independent decisions about their future, therefore caregivers and health care providers are motivated more to disclose to older children. Similarly Glaser (2016) found young children had lower disclosure rate compared to older children because caregivers believe that young children are not matured enough to understand information about the disease and its effects. Other studies, one conducted in Western Kenya (Vreeman *et* al., 2014) and another conducted in Ghana (Kallem et al., 2011); showed similar findings that disclosure rate is higher in older children compared to younger children.

4.6.3 Association between children's selected characteristics and Disclosure status among HIV infected children.

The current study was found that, disclosure rate was increasing with child level of education; secondary school children were more likely to be disclosed than children in primary school or below. This result is similar to the World Health Organization (WHO) guidelines which recommends the children of school age to be told of their HIV-positive status incrementally to accommodate their cognitive skills (Glaser, 2016). Also in this study was shows the association estimates child age and disclosure status. This means that, the odds to have disclosure increases by 2.464 times when age of a child increases by one year. Similarly result was found that, disclosure was highly associated with age (Bulali et al., 2018). Children who were fully understood why they were taking medication were better motivated to take the medication than children who were taking medication because it was the right thing to do. This could be because disclosed children were more comfortable and concerned with their health after understanding the reason of taking medication

compared to those whom had not full disclosed. Secondly, could be because their health was much more improved than when they were not disclosed. Thirdly, maybe there were more health related complications before HIV status disclosure admitted hospital due to opportunistic infections than after disclosure which promoted the ART adherence. Similar observation was reported in other studies about good adherence to treatment, among disclosed clients as compared to non-disclosed (Munongo, 2012; Scanlon & Vreeman, 2013). The current study shows a significant association in education level, the secondary school children had higher odds to be disclosed compared to children who are not in school. This could be due to those secondary education children's aware of their HIV status.

4.6.4 Prevalence of depressive symptoms among HIV- infected children

Result of this study shows that 51.09% of HIV infected children had depressive symptoms. This prevalence is higher than the prevalence reported by one study conducted in Mbeya region by Lwidiko et al., (2018) which revealed a 27% prevalence of depressive symptoms among HIV-infected children. Also the prevalence found in this study is higher than those reported in Malawi (18.9%) by Kim et al., (2015), Kenya (17.8%) by Kamau *at* el ,.(2012), and Malaysia (18.5 %) by Duko *et* al (2019).

The prevalence of depressive symptoms found in our study is within the range of prevalence reported in a study conducted in Dar es, Salaam-Tanzania by Kemigisha et al., (2019) who found a prevalence of 25.7% in children aged 9 – 12 years and 74.3% in children aged 13 – 17 years. A cross sectional study conducted in several Sub-Saharan countries shows a higher prevalence of 70-90% among HIV-infected children aged between 10-19 years of age (Nyundo, Manu, Chukwu, & Dessie, 2019). The possible reason for discrepancy in prevalence may be due to difference in study design and inclusion criteria. In this study we included children of ages 10 to 15 years while other studies have considered even children aged below 10 years and children aged above 15 years. The design of this study was a cross-section while there other studies which have been conducted in case-control settings. Also, study location may have an influence in results discrepancy.

4.6.5 Association between children's selected characteristics and depressive symptoms among HIV infected children

This study found that, full-disclosed children are more likely to have depressive symptoms compared to non-disclosed children (odds ratio of about 2.362). Although full-disclosed children are more likely to have depressive symptoms, other studies suggest that disclosed children do not experience the negative effects for a long term, later on they benefit from knowing their HIV status (Lorenz et al., 2016) and (Hatfield et al., 2016).

In this study the researcher found that, children who were followed-up for post-disclosure had reduced risk of depressive symptoms, the odds to have depressive symptoms was 0.647 times lower compared to full-disclosed children with no post-disclosure. This means that; when full-disclosed children receive post disclosure, the risk to have depressive symptoms reduces by 35.3%. Therefore follow-up after full disclosure is of great important to children in order to reduce the risk of depressive symptoms.

The findings of this study are similar with the findings of the studies conducted by Adefalu et al., ,(2016), and Menon *et* al (2014) who also found a significant association between HIV status disclosure and depressive symptoms among HIV-infected children. Meanwhile in the studies conducted by Vreeman *et* al (2014) in Kenya, and Butler et al., (2020) in USA, there was no enough evidence to conclude significant association between disclosure and depressive symptoms among HIV-infected children.

4.6.6 Association between children's selected characteristics and Quality of life among HIV infected children.

In this study, there was no any selected characteristic found to have significant association with quality of life among HIV infected children. With regards to the association between disclosure and quality of life, our findings are similar to what was found by Butler et al., (2020) in USA and Ayaya.,*at* el (2014) in Kenya but different from what was found by Bulali et al.,(2018) in Tanzania. The findings from Butler et al., (2020) and Ayaya.,*at* el (2014) show no significant association between disclosure and child quality of life while the findings from Bulali et al.,(2018) shows

a significant association between disclosure and child quality of life. As in our study, the studies conducted by Bulali et al.,(2018) in Tanzania and Pai & Nayak, (2014) in India found no significant association between sex of a child and quality of life. Similar to the findings of Lwidiko et al.,(2018) and Pai & Nayak, (2014), no significant association between age of a child and quality of life was found in this study. Our findings are different from those of Bulali et al.,(2018) who found a significant association between age of a child and quality of life. With regards to child education, this study has similar findings with what was found by Bulali et al.,(2018) that there is no significant association between child education and quality of life.

The current study found no significant association between loss of both parents and quality of life, these findings are similar to the findings of the study conducted by Pai & Nayak, (2014). Unlike in our study where there was no enough evidence to conclude a significant association between quality of life and who a child live with, Bulali et al.,(2018) and Kuntawee et al., (2010) found a significant association between quality of life and who a child live however the direction of the association found by Bulali et al.,(2018) and that found by Kuntawee et al., (2010) was differnet. Bulali et al.,(2018) found that children who were living with people other than their parents were less likely to have good quality of life compared to those who live their parent(s) while Kuntawee et al., (2010) found that children who were living with people other than their parents were more likely to have good quality of life compared to those who live their parent(s). As in our study, the studies conducted by Lwidiko et al., (2018) and Bulali et al.,(2018) did not find a significant association between quality of life and caregiver education. With regards to caregiver occupation, this study has similar findings with what was found by Lwidiko et al., (2018) that there is no significant association between caregiver occupation and quality of life.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION:

5.1 Overview

This chapter presents the conclusion drown from the study, recommendations and suggestions for further research based on discussion made from chapter five. Also they presents the strength and study limitations.

5.2 Conclusion

Despite the fact that full-disclosure associated with increase in risk to have depressive symptoms, the risk decreases when children receives post-disclosure. This study recommends improvement of disclosure process to reduce the risk of depressive symptoms associated with disclosure. Also we encourage more follow-up after full-disclosing to children as it has been found that with post-disclosure the risk of depressive symptoms reduces.

5.3 Recommendation

Despite the fact that full-disclosure associated with increase in risk to have depressive symptoms, the risk decreases when children receives post-disclosure after disclosure process. This study recommends improvement of disclosure process to reduce the risk of depressive symptoms associated with disclosure, which might improve quality of life among HIV- infected children. Also, we encourage more follow-up after full-disclosing to children as it has been found that with post-disclosure the risk of depressive symptoms is reduced. In this study it was found that caregiver's involvement in disclosure is very low (only 15.03% had been involved) therefore, the researchers advice the health care provider to continue to provide more education among caregivers regarding to disclosure process. This study suggests researches with strong designs (example cohort study) to be conducted in studying the influence of HIV status disclosure on depressive symptoms and quality of life among HIV-Infected children. Compared to cross-section studies, cohort studies are more powerful in investigating the influence of exposure (HIV status disclosure) to outcome (depressive symptoms and quality of life in our case).

Last but not least, the current study recommends that, the findings may help governments through Ministry of Health, together with NGO's to focus on empowering health care provider with practical skills and more training on how to facilitate the disclosure process, in appropriate time and high quality disclosure among children. Also to remind them to involve caregivers during disclosure process, according to the guidelines.

5.4 Strength of the study

This was a hospital based study which involved two regions (Dodoma and Singida), the health facilities were randomly selected using simple random sampling technique to give an equal chance for each facility to be included in the study. Also an adequate sample size was used in the study to detect if there is any significant result. A validated tool was used to measure depressive symptoms among HIV infected children. Also a reliability test has been done to assess a cross-cultural adaptation of the tool to be used for HIV-infected children in Tanzania (Chatterji, M. 2003).

To my best of understanding, so far there is no published cross-section study conducted in Central Zone of Tanzania to assess the influence of HIV status disclosure on depression symptoms and quality of life among HIV infected children. Therefore, this cross-section study can be used as a baseline study. The study has also considered many factors in adjusting the association between disclosure and depressive symptoms, due to that we expect to have unbiased estimates of the association.

5.5 Study limitations

However, this study had several of limitations for consideration. One limitation was time limits for gather information pertaining to this study, as majority of children's care and treatment centres operated once or twice a month which made the researcher to use more resources to reach more centres at a time that was expected in order to achieve the required sample size. Also, there were no study performed in the same setting and assessing the influence of HIV status disclosure on depressive symptoms and quality of life in Tanzania therefore we were lacking other studies to compare with especially on adjusted association.

This was not an experimental study; therefore the results from this study cannot be used to establish causal relationship. The results will be used only to demonstrate the association between variables.

REFERENCES

Abebe, H., Shumet, S., Nassir, Z., Agidew, M., & Abebaw, D. (2019). Prevalence of Depressive Symptoms and Associated Factors among HIV-Positive Youth Attending ART Follow-Up in Addis Ababa , Ethiopia, *2019*.

Adefalu, M. O., Florence, M., Issa, B. A., & Adefalu, A. A. (2016). Does Disclosure of HIV / AIDS Status to Children with HIV / AIDS Affect their Does Disclosure of HIV / AIDS Status to Children with HIV / AIDS Affect their Mental Health ?, (March 2019). https://doi.org/10.4172/2378-5756.1000399.

Adefalu, M. O., Florence, M., Issa, B. A., & Adefalu, A. A. (2016). Does Disclosure of HIV / AIDS Status to Children with HIV / AIDS Affect their Mental Health ? *Journal of Psychiatry*, *20*(1), 1–5. https://doi.org/10.4172/2378-5756.1000399.

Adefalu, M. O., Tunde-Ayinmode, M. F., Awoye, I. B., Adefalu, A. A., & Adepoju, S. (2018). Psychiatric Morbidity in Children with HIV / AIDS at a Tertiary Health Institution in North-central Nigeria. *Journal Of Tropical Pediatrics*, *64*(April 2017), 38–44. https://doi.org/10.1093/tropej/fmx025.

Adom, D., Hussein, E. K., & Joe, A.agyem. (2018). theoretical and conceptual framework : mandatory ingredients theoretical and conceptual framework : mandatory ingredients Engineering Dickson Adom * Emad Kamil Hussein, (January).

Allgaier, A., Pietsch, K., & Fru, B. (2011). Children ' s Depression Screener (Child-S): Development and Validation of a Depression Screening Instrument. https://doi.org/10.1007/s10578-011-0254-1.

Anfara Jr, V. A., & Mertz, N. T. (2014). Theoretical frameworks in qualitative research. Sage Publications. Retrieved from https://www.amazon.com/Theoretical-Frameworks-Qualitative-Research-Vincent/dp/1412914167.

Biadgilign et al. (2011). Factors Associated with HIV/ AIDS Diagnostic Disclosure to HIV Infected Children Receiving HAART : A Multi-Center Study in Addis Ababa, Ethiopia, *6*(3), 1–6. https://doi.org/10.1371/journal.pone.0017572.

Britto, C., Mehta, K., Thomas, R., & Shet, A. (2018). Europe PMC Funders Group Prevalence and Correlates of HIV Disclosure Among Children and Adolescents in Low- and Middle-Income Countries : A Systematic Review. *J Dev Behav Pediatr*, *37*(6), 496–505

https://doi.org/10.1097/DBP.0000000000000303.

Prevalence Brown, B. J., Oladokun, R. E., & Ochigbo, S. (2011). AIDS Care : Psychological and Socio-medical Aspects of AIDS / HIV Disclosure of HIV status to infected children in a Nigerian HIV Care Programme, (December 2014), 37–41. https://doi.org/10.1080/09540121.2011.554523.

Brown, L. K., Whiteley, L., Harper, G. W., & Nichols, S. (2015). Psychological Symptoms Among 2032 Youth Living with HIV : *Aids patient care and STDs*, *29*(4), 212–220. https://doi.org/10.1089/apc.2014.0113.

Bulali, R. E., Kibusi, S. M., & Mpondo, B. C. T. (2018). Factors Associated with HIV Status Disclosure and Its Effect on Treatment Adherence and Quality of Life among Children 6 – 17 Years on Antiretroviral Therapy in Southern Highlands Zone , Tanzania : Unmatched Case Control Study. *International Journal of Pediatrics*, *2018*, 10 https://doi.org/https://doi.org/10.1155/2018/8058291.

Butler, A. M., Williams, P. L., Howland, L. C., Storm, D., & Hutton, N. (2020). Impact of Disclosure of HIV Infection on Health-Related Quality of Life Among Children and Adolescents With HIV Infection, *123*(3). https://doi.org/10.1542/peds.2008-1290.

Camp, W. G. (2001). Formulating and Evaluating Theoretical Frameworks for career and technical education research, *26*(1), 4–25.

Chajenje Reviw 2003.pdf. (n.d).

Chand, S. P., & Marwaha, R. (2019). Anxiety. Treasure Island (FL): StatPearls Publishing [Internet]. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK470361.

Christopher, S., Appiah, Y., Kroidl, I., Hoelscher, M., Ivanova, O., & Dapaah, J. M. (2019). A Phenomenological account of HIV Disclosure experiences of children and adolescents from Northern and Southern Ghana. *Int. J. Environ. Res. Public Health*. https://doi.org/10.3390/ijerph16040595.

Collaboration, C., Slogrove, A. L., Schomaker, M., Davies, M., Williams, P., Balkan, S., … Judd, A. (2018). The epidemiology of adolescents living with perinatally acquired HIV : A cross-region global cohort analysis The Collaborative Initiative for Paediatric HIV Education and Research (CIPHER) Global, 1–21.

Doat, A., & Negarandeh, R. (2019). Disclosure of HIV Status to Children in Sub-

Saharan Africa : A Systematic Review. *Medicina*, *2019*(55), 1–12. https://doi.org/doi:10.3390/medicina55080433.

Duko, B., Toma, A., Asnake, S., & Abraham, Y. (2019). Depression , Anxiety and Their Correlates Among Patients With HIV in South Ethiopia : An Institution-Based Cross-Sectional Study, *10*(May), 1–7 https://doi.org/10.3389/fpsyt.2019.00290.

Gakhar et al. (2015). Health-related Quality of Life Assessment after Antiretroviral Therapy: A Review of the Literature, *73*(7), 651–672. https://doi.org/10.1007/s40265-013-0040-4.

Glaser, E. (2016a). *Disclosure of HIV Status Toolkit for Pediatric and Adolescent Populations*.

Glaser, E. (2016b). *Disclosure of HIV Status Toolkit for Pediatric and Adolescent Populations*.

Glaser, E. (2016c). Disclosure of HIV Status Toolkit for Pediatric and Adolescent Populations.

Guideline on HIV disclosure counselling for children up to 12 years of age. (n.d.).

Gyamfi, E., Okyere, P., Enoch, A., & Appiah-brempong, E. (2017). Prevalence of , and barriers to the disclosure of HIV status to infected children and adolescents in a district of Ghana. *BMC International Health and Human Rights (2017)*, *2017*(17), 1–8. https://doi.org/10.1186/s12914-017-0114-6.

Harkins et al. (2015). *Evaluation Performance of the Strengthening Pediatric HIV and AIDS Services in Tanzania Program*.

Haseli et al. (2014). Health-related quality of life and its related factors in HIV patients referred to Shiraz Behavioral Counseling Center , Iran in 2012, *28.13*.

Hayfron-benjamin, A., Obiri-yeboah, D., Ayisi-addo, S., Siakwa, P. M., & Mupepi, S. (2018). HIV diagnosis disclosure to infected children and adolescents ; challenges of family caregivers in the Central Region of Ghana. *BMC Pediatric*, *18*(365), 1–11.

International, A., Journal, I., Kiula, C. S., Majapa, S., & Mwansisya, T. E. (2019). Vulnerable Children and Youth Studies Disclosure of HIV status of school-age children : an experience from health-care providers and children ' s caregivers in Dar es Salaam , Tanzania. *Vulnerable Children and Youth Studies*, *00*(00), 1–4. https://doi.org/10.1080/17450128.2019.1601799.

John-Stewart, G., Wariua, G., Beima-Sofie, K., & Richardson, B. (2014). Prevalence, perceptions and correlates of pediatric HIV disclosure in an HIV treatment program in Kenya. *NIH Public Access*, *25*(9), 1067–1076. https://doi.org/10.1080/09540121.2012.749333.

Prevalence; Kalembo, F. W., Kendall, G. E., Ali, M., & Chimwaza, A. F. (2019). Prevalence and factors associated with emotional and behavioural difficulties among children living with HIV in Malawi : a cross-sectional study. *BMC Psychiatry*, *19*(60), 1–14. https://doi.org/https://doi.org/10.1186/s12888-019-2046-2.

Kallem et al. (2011). Prevalence and Pattern of Disclosure of HIV Status in HIV-Infected Children in Ghana NIH Public Access. *AIDS and Behavior*, *6*, 1–15. https://doi.org/10.1007/s10461-010-9741-9.

Kallem, S., Renner, L., Ghebremichael, M., & Paintsil, E. (2012). NIH Public Access. *NIH Public Access*, *15*(6), 1121–1127. https://doi.org/10.1007/s10461-010-9741-9.

Prevalence;Kamau, J., Kuria, M., Mathai, M., & Atwoli, L. (2012). AIDS Care : Psychological and Socio-medical Aspects of AIDS / HIV Psychiatric morbidity among HIV-infected children and adolescents in a resource-poor Kenyan urban community, (January). https://doi.org/10.1080/09540121.2011.644234.

Kemigisha, E., Zanoni, B., Bruce, K., Menjivar, R., Atwine, D., Rukundo, G. Z., … Population, A. (2019). HHS Public Access, *31*(10), 1297–1303. https://doi.org/10.1080/09540121.2019.1566511.

Prevalence ;Kiene, S. M., Dove, M., & Wanyenze, R. K. (2019). Coping following HIV Testing among outpatients in Uganda: A daily process analysis. *AIDS Behaiviour*, *22*(5), 1639–1651. https://doi.org/10.1007/s10461-017-1953-9. Depressive; Kim, M. H., Mazenga, A. C., Yu, X., Devandra, A., Nguyen, C., Ahmed, S., Sharp, C. (2015). Factors associated with depression among adolescents living with HIV in Malawi. *BMC Psychiatry*, 1–12. https://doi.org/10.1186/s12888-015-0649-9.

kiula s, mapaja s, mwansisya T. (2019). Vulnerable Children and Youth Studies Disclosure of HIV status of school-age children : an experience from health-care providers and children ’ s caregivers in Dar es Salaam , Tanzania. *An International Interdisciplinary Journal for Research, Policy and Care*, *00*(00),

1–4. https://doi.org/10.1080/17450128.2019.1601799.

Kuntawee et al. (2010). Social Factors Related to Quality of Life Among HIV Infected Children in Ubon Ratchathani Province, Thailand, *41*(5).

Kuringe, E., Materu, J., Nyato, D., Majani, E., Ngeni, F., Shao, A., … Wambura, M. (2019). Prevalence and correlates of depression and anxiety symptoms among out-of-school adolescent girls and young women in Tanzania : A cross-sectional study. *Plos One*, 1–22. Retrieved from https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0221053&type=printable

L, R. M., Noubiap, J. J. N., Fang, Y., Ntone, F. E., & Kuaban, C. (2013). Prevalence and correlates of depressive symptoms in HIV-positive patients : a cross-sectional study among newly diagnosed patients in Le, M., Arenas-pinto, A., Melvin, D., Parrott, F., Foster, C., & Ford, D. (2018).

Anxiety and depression symptoms in young people with perinatally acquired HIV and HIV affected young people in England. *AIDS Care*, *30*(8), 1040–1049. https://doi.org/10.1080/09540121.2018.1441972.

Lorenz, R., Grant, E., Muyindike, W., Maling, S., Card, C., Henry, C., & Nazarali, A. J. (2016). Caregivers ’ Attitudes towards HIV Testing and Disclosure of HIV Status to At-Risk Children in Rural Uganda, 1–22. https://doi.org/10.1371/journal.pone.0148950.

Lwidiko, A., Kibusi, S. M., Nyundo, A., Bonaventura, C., & Mpondo, T. (2018). Association between HIV status and depressive symptoms among children and adolescents in the Southern Highlands Zone , Tanzania : A case-control study, *96*, 1–13.

Madiba, S., & Matlala, C. (2012). Disclosure of Parental HIV Positive Status : What , Why , When , and How Parents Tell Their Children in the Era of HAART in South Africa. *World Journal of AIDS*, *2012*(September), 194–202. https://doi.org/http://dx.doi.org/10.4236/wja.2012.23025 Published.

Mbalinda et al. (2015). Reproductive health and lifestyle factors associated with health-related quality of life among perinatally HIV-infected adolescents in Uganda. *Health and Quality of Life Outcomes*, 1–11. https://doi.org/10.1186/s12955-015-0366-6.

Meena, R., Hemal, A., & Arora, S. K. (2018). Pediatric HIV Disclosure in Northern

India : Evaluation of Its Prevalence , Perceptions amongst Caregivers , and Its Impact on CLHIV. *AIDS Research and Treatment*, *2018*, 7–14. https://doi.org/https://doi.org/10.1155/2018/2840467.

Mgalilwa, L. A., Of, M., & In, S. (2016). The Effect Of Hiv Status On Childhood.

Mokkink, L. B., Terwee, C. B., Patrick, D. L., Alonso, J., Stratford, P. W., Knol, D. L., Vet, H. C. W. De. (2010). The COSMIN study reached international consensus on taxonomy , terminology , and definitions of measurement properties for health-related patient-reported outcomes. *Journal of Clinical Epidemiology*, *63*(7), 737–745. https://doi.org/10.1016/j.jclinepi.2010.02.006

Motilewa et al. (2015). A Comparative Study of Health Related-Quality of Life Among HIV Patients on Pre-HAART and HAART in Uyo South-South Nigeria, *7*(2), 60–68. https://doi.org/10.4172/jaa.1000120.

Mumburi, L. P., Hamel, B. C., Philemon, R. N., Kapanda, G., & Msuya, L. J. (2014). Factors associated with HIV-status disclosure to HIV-infected children receiving care at Kilimanjaro Christian Medical Centre in Moshi, Tanzania. *Pan African Medical Journal*, *8688*, 1–8. https://doi.org/10.11604/pamj.2014.18.50.2307.

Munongo. (2012). *Factors that influence parents to disclose or not to disclose HIV status to their children who are living with HIV / AIDS in the greater Harare area in Zimbabwe*.

National Bureau of Statistics. (2018). Tanzania HIV Impact Survey (THIS) 2016-2017. Dodoma: United Republic of Tanzania. Retrieved from https://www.nbs.go.tz/nbs/takwimu/this2016-17/THIS_2016 2017_Final_Report.pdf.

Negese et al. (2012). HIV-Positive Status Disclosure and Associated Factors among Children in North Gondar, Northwest Ethiopia, *2012*, 7. https://doi.org/10.5402/2012/485720.

Nyundo, A., Manu, A., Chukwu, A., & Dessie, Y. (2019). Factors associated with depressive symptoms and suicidal ideation and behaviours among sub - Saharan African adolescents aged 10 - 19 years : Cross - sectional study Factors associated with depressive symptoms and suicidal ideation and behaviours amongst sub-Saharan African adolescents aged 10-19 years : cross-sectional study, (December). https://doi.org/10.1111/tmi.13336.

Nzota et al. (2015a). Determinants and processes of HIV status disclosure to HIV-infected children aged 4 to 17 years receiving HIV care services at Baylor College of Medicine Children's Foundation Tanzania, Centre of Excellence (COE) in Mbeya : A cross-sectional study. *BMC Pediatrics*, 1–9. https://doi.org/10.1186/s12887-015-0399-3.

Nzota, M. S., Matovu, J. K. B., Draper, H. R., Kisa, R., & Kiwanuka, S. N. (2015b). Determinants and processes of HIV status disclosure to HIV - infected children aged 4 to 17 years receiving HIV care services at Baylor College of Medicine Children ' s Foundation Tanzania , Centre of Excellence (COE) in Mbeya : a cross-sectional study. *BMC Pediatrics*, 1–9. https://doi.org/10.1186/s12887-015-0399-3.

Odiachi, A. (2017). The Impact of Disclosure on Health and Related Outcomes in Human Immunodeficiency Virus-Infected Children : A Literature Review. *Frontiers in Public Health*, *5*(August). https://doi.org/10.3389/fpubh.2017.00231.

Odiachi, A., & Abegunde, D. (2016). Prevalence and predictors of pediatric disclosure among HIV-infected Nigerian children on treatment, *0121*(April). https://doi.org/10.1080/09540121.2016.1147018.

Okawa, S. (2017). Adolescents ' Experiences and Their Suggestions for HIV Serostatus Disclosure in Zambia : A Mixed-Methods Study. *Frontiers in Public Health*, *5*(December), 1–8. https://doi.org/10.3389/fpubh.2017.00326.

Pai, M. S., & Nayak, B. S. (2014). Quality of life and Social Support among Children Living with HIV (CLHIV) in Quality of life and Social Support among Children Living with HIV (CLHIV) in South India, (January). https://doi.org/10.9790/1959-03625558.

Ramos, J. V, Turner, E. L., & Rugalabamu, L. L. (2018). with Mental Health , Stigma , and Antiretroviral Therapy, *32*(1), 31–37. https://doi.org/10.1089/apc.2017.0196.

Rivera, D. . (2019). What are the statistics on pediatric HIV infection in sub-Saharan Africa? Retrieved from https://www.medscape.com/answers/965086-160121/what-are-the-statistics-on-pediatric-hiv-infection-in-sub-saharan-africa

Scanlon & Vreeman. (2013). Current strategies for improving access and adherence to antiretroviral therapies in resource-limited settings, 1–17.

Sedgwick, P. (2014). Cross sectional studies : advantages and disadvantages. *British Medical Journa*, *2276*(March), 1–2. https://doi.org/10.1136/bmj.g2276.

Sherr, L., Cluver, L. D., Betancourt, T. S., Kellerman, S. E., Richter, L. M., & Desmond, C. (2014). Evidence of impact : health , psychological and social effects of adult HIV on children, 251–259. https://doi.org/10.1097/QAD.0000000000000327.

Sirikum et al. (2014). HIV disclosure and its effect on treatment outcomes in perinatal HIV-infected Thai children. *AIDS Care*, *0*(0), 1–6. https://doi.org/10.1080/09540121.2014.894614.

UNAIDS. (2014). 90-90-90, An ambitious treatment target to help end the AIDS epidemic. Retrieved from https://www.unaids.org/sites/default/files/media_asset/90-90-90_en.pdf

UNAIDS. (2016). Prevention Gap Report.

United Republic of Tanzania. (2015). The National Guidelines for Integrated Comprehensive Community- Based HIV and AIDS Services. National AIDS Control Programme. Retrieved from www.nacp.go.tz/site/download/%0Anationalguidelines 2014. pdf.

United Republic of Tanzania. (2017). *National guidelines for the Sixth Edition October 2017*.

UNSAIDS. (2013). *Children and HIV / AIDS Why are children at risk of HIV ? Children who inject drugs Orphans and vulnerable children (OVC) HIV prevention programmes for children Prevention of mother-to-child transmission (PMTCT).*

Vaz, L. M. E., Eng, E., Maman, S., Tshikandu, T., & Behets, F. (2010). Telling Children They Have HIV : Lessons Learned from Findings of a Qualitative Study in Sub-Saharan Africa. *AIDS Patient Care and STDs*, *24*(4). https://doi.org/10.1089=apc.2009.0217.

Vreeman, R. C., Mccoy, B. M., & Lee, S. (2017a). Review article Mental health challenges among adolescents living with HIV, *20*(Suppl 3), 100–109. https://doi.org/10.7448/IAS.20.4.21497.

Vreeman, R. C., Mccoy, B. M., & Lee, S. (2017b). Review article Mental health challenges among adolescents living with HIV. *Journal of the International AIDS Society*, *20*(3), 100–109. https://doi.org/10.7448/IAS.20.4.21497.

Vreeman, R. C., Scanlon, M. L., Mwangi, A., Turissini, M., & Ayaya, S. O. (2014). A Cross-Sectional Study of Disclosure of HIV Status to Children and A Cross-Sectional Study of Disclosure of HIV Status to Children and Adolescents in Western Kenya, (January). https://doi.org/10.1371/journal.pone.0086616.

Vreeman, R. C., Scanlon, M. L., Mwangi, A., Turissini, M., Ayaya, S. O., Tenge, C., & Nyandiko, W. M. (2014). A Cross-Sectional study of disclosure of HIV status to children and adolescents in Western Kenya. *PLOS ONE*, *9*(1), 1–10. https://doi.org/10.1371/journal.pone.0086616.

Vreeman, R. C., Scanlon, M. L., Tu, W., Slaven, J., Mcateer, C., Aluoch, J., … Nyandiko, W. M. (2019). Validation of an HIV / AIDS Stigma Measure for Children Living with HIV and Their Families, *18*, 1–11. https://doi.org/10.1177/2325958219880570.

WHO. (2014). Adolescent knowing their status. Retrieved from http://apps.who.int/adolescent/hiv-testing-treatment/page/Adolescents_knowing_their_own_HIV_status.

Woollett, N., Brahmbhatt, H., Dodd, K., Booth, M., Berman, H., & Cluver, L. (2017). Children and Youth Services Review Revealing the impact of loss : Exploring mental health through the use of drawing / writing with HIV positive adolescents in Johannesburg ☆. *Children and Youth Services Review*, (April), 0–1. https://doi.org/10.1016/j.childyouth.2017.04.021.

World Health Organization. (2011). *Guideline on HIV disclosure counselling for children up to 12 years of age. Geneva*. Retrieved from http://www.who.int/about/%0A%5Cnhttp://apps.who.int/iris/bitstream/10665/44777/1/97892-%0A41502863 eng.pdf.

Xu et al. (2011). Quality of life of children living in HIV/AIDS-affected families in rural areas in Yunnan, China. *AIDS Care*, *22*(3), 390–396. https://doi.org/10.1080/09540120903196883.

APPENDICES

Appendix 1: Information Sheet

Introduction

I'm **Loveness Isaya Urassa**, a second-year student undertaking a Master's of Science in Paediatric Nursing at the University of Dodoma College of Health and Allied Sciences. My research is basically focusing on assessing the effect of Disclosure on Depressive Symptoms among HIV - infected children aged 10 to 15 years receiving HIV care services at central zone regions of Tanzania

Purpose of the study

The main purpose of this study is to Assessing the effect of Disclosure on Depressive Symptoms among HIV - infected children aged 10 to 15 years receiving HIV care services at central zone regions of Tanzania. Therefore, I request for your participation in this study so as to share the experiences about the HIV status disclosure and effect occurred after disclosure and the mental outcomes after the child knowing their diagnosis.

Participant role

After caregiver agreement of participation, the principal investigator and research assistant were reading the questions careful relating to caregivers and their children. Both children and caregiver was interviewed separately, caregivers were answered questions regarding to HIV disclosure and part of caregiver depressive symptoms. Similarly children were contributing to answer questions related to child depressive symptoms and he/she was responding it according to their understanding.

Confidentiality

The Principal investigator they make sure that all information which you will provide to us will be confidential, no one will access your information, and no name will be written in the questionnaires.

Benefit

There is no straight benefit which you will acquire after participating in this study instead; you will get awareness about HIV status disclosure, important of disclosure on timely, and to assess the early signs of Depressive Symptoms and to help you to take action immediately to your HIV - infected children. Also your information will help the government to understand the situation and make an intervention in order to reduce deaths related to depressive symptoms among HIV -infected children.

Risk

In this study there is no any risk which is expected to occur in the all process of data collection.

Right to withdraw

To participate in this study is your wishes. So you have the right to withdraw at any time you wish.

Who to contact

For any problem, any questions and any constructive issues related to this study, you can contact to Loveness Urassa, Who is a Principal Investigator on this study, via to mobile phone number 0743782057.

Appendix 2: Consent form for Caregivers

Title: The influence of HIV status disclosure on depressive symptoms and quality of life among HIV infected children of 10 to 15 years receiving HIV care services at central zone regions of Tanzania.

I hereby confirm that I have read and understood the information sheet.

I was given opportunity to ask questions and all my questions were answered to my satisfaction. Also I was given enough time to decide whether to participate in the study or not.

I hereby consent to participate in the research referred to above.

I know that participation is entirely voluntary and I aim free to withdraw at any time without given any reason.

I hereby consent to the processing of data concerning me for the purposes of this research.

Caregiver's name: . . . . Signature……Date: …….

Investigator's name: . . . . Signature . . . . . Date: ……

Appendix 3: Consent form for Caregivers on behalf of Children

Title: The influence of HIV status disclosure on depressive symptoms and quality of life among HIV infected children of 10 to 15 years receiving HIV care services at central zone regions of Tanzania.

I have been asked to give my consent for (Name): ……

Date to participate in the research referred to above……..
I hereby confirm that I have read and understood the subjects' information sheet.

I was allowed sufficient time to consider whether to give my consent and was also given the opportunity to ask questions. Any questions I asked were answered to my satisfaction.

I hereby give my consent for my child to participate in the research referred to above.

I am aware that participation is entirely voluntary and that I may withdraw my consent at any time without giving a reason.

I hereby consent to the processing of data concerning my child for the purposes described in the subjects' information sheet.

Note: A copy of the signed consent form and a copy of the information sheet should be given to the caregiver.

Caregiver's name: . . . . Signature. ……. Date: …….

Investigator's name: . . . . Signature . . . . . Date: ……

Appendix 4: Interviewer Administered Questionnaire

The influence of HIV status disclosure on depressive symptoms and quality of life among HIV infected children of 10 to 15 years receiving HIV care services at central zone regions of Tanzania.

Dear Participant,

You have been randomly selected to be part of this study and we would, therefore, like to interview you. This study is conducted under The University of Dodoma (UDOM). The research focus is on HIV disclosure and depressive symptoms. This study is currently taking place in several districts in two regions (Dodoma and Singida). The information you provide will only be used to understand the main things about disclosure in relation to depressive symptoms.

I will ask you questions about:

- Some personal details,

- HIV disclosure information and child depressive symptoms.

The information you provide is totally confidential and will not be disclosed to anyone. It will only be used for research purposes.

Your participation is voluntary and you can withdraw from the study after having agreed to participate. If you have any questions about this study you may ask me.

Interviewer……. Questionnaire no ……..

Region ……District …… Place of interview: CTC ……

Date of interview (dd/mm/yyyy).....

Section A: Socio-demographic characteristics of caregiver

1. Village/street where the caregiver is coming from ……
2. Age of caregiver in years ……
3. Caregiver's sex 1. Male 2.Female
4. What is your marital status?

    1. Never married
    2. Married
    3. Cohabiting
    4. Divorced/separated
    5. Widowed
    6. Others (Specify) ……..

5. What is your religious affiliation?
    1. Christian
    2. Muslim
    3. Others (Specify) …….
6. Caregiver level of Education
    1. Never attended school
    2. Primary education
    3. Secondary education
    4. Certificate /Diploma
    5. Bachelor degree and above
    6. Others (specify)……..
7. What is your occupation?
    1. Not employed
    2. Subsistence farmer
    3. Large scale-farmer
    4. Business person
    5. Civil servant

6. Private employee
7. Others (Specify) …….

8. What is your tribe? ……

Section B: Socio-demographic characteristics of children

9. Sex of a child you came with 1. Male 2. Female

10. Age of the child in years ……

11. What is the Education level of the child?

1. Not in school
2. Nursery school
3. Primary level
4. Secondary school
5. Others (specify)……

12. Are the child's parents alive?

1. Both parents are alive
2. Only mother is alive
3. Only father is alive
4. None is alive

13. What relationship do you have with the child?

1. Mother
2. Father
3. Grandmother / Grandfather
4. Aunt/ Uncle
5. Other (specify) …….

14. Who is the child living with?

1. Both parents
2. Mother only
3. Father only
4. Grandmother / Grandfather
5. Aunt / uncle
6. Other (specify) …….

15. At what age the child was diagnosed with HIV? ……

16. For how long has the child been using ARVs? ……. (in years)

Section C: HIV Disclosure

17. Have you heard about disclosure of HIV status to a child?

    1. Yes
    2. No

18. If yes, what was your source of information? (***If no go to question19)***

    1. Health worker (Doctor, Nurse, clinical officer)
    2. Radio
    3. Television
    4. Newspapers
    5. Others specify…….

19. Have you ever been involved in disclosure of HIV to any child living with HIV?

    1. Yes
    2. No

20. Do you think it is important to disclose HIV to a child living with HIV?

    1. Yes
    2. No

If no go to question no. 22

21. If yes give reasons ……..
22. If no give reasons ……...
23. Has the child previously received disclosure information?

    (***If no go question 30)***

    1. Yes
    2. No

24. If yes, what kind of disclosure did the child receive?

    5. Partial disclosure (if HIV not mention)
    6. Full disclosure (if HIV mentioned)
    7. Post disclosure (if full disclosure and follow-up to continue disclosure)

25. At what age did she/he receive disclosure information? ……

26. At what class level the child was when she/he received disclosure?

1. Not in school
2. Nursery school
3. Primary school
4. Secondary school
5. Other (specify) …….

27. What prompted you to disclose the HIV status of child to him/her?

1. Physician advice/health care workers
2. Old enough
3. Family advice
4. Low CD4 count of a child
5. Poor adherence to ARVs
6. Opportunistic infections
7. Others (specify) …….

28. What was the health of the child at the time she/he received disclosure?

1. Very ill (admitted to the hospital)
2. Ill (Not admitted to the hospital)
3. Had no sickness
4. Others (Specify) …….

29. What exactly did you tell the child about the illness which made him/her to attend this clinic?

……

……

For children with no disclosure (If the child had disclosure, go to Part D)

30. What was the reason for not telling his/her HIV status?

1. Stigma
2. Fear of negative reaction from the child
3. It may disturb the child psychologically
4. May hurt child
5. Other reasons (specify) …….

31. Do you have any plan of telling your child in future that he/she HIV infected?

    1. Yes
    2. No

32. At what age are you planning to do that ……

Part D: Child's Quality of life information (WHO QOL)

This part, asks about the child's quality of life, health, or other areas of his/her life

		Very poor	Poor	Neither poor nor good	Good	Very good
1	Rate the child's overall quality of life	1	2	3	4	5
2	Rate the child's health	1	2	3	4	5
3	Rate the income with respect to child's needs	1	2	3	4	5
4	Rate the child's opportunity to leisure	1	2	3	4	5
5	Rate the child's living place	1	2	3	4	5
6	Rate the child's access to health services	1	2	3	4	5
7	Rate the child's means of transport to clinic	1	2	3	4	5

Part E; Caregivers Questions on Children's Depressive Symptoms

Circle the appropriate answer

		Not at all	Sometime	Often	Most of the time
1	To what extent do you see negative mood to your child?	1	2	3	4
2	To what extent do you see your child is sad?	1	2	3	4
3	To what extent do you see your child is crying?	1	2	3	4
4	To what extent do you see your child is irritable?	1	2	3	4
5	To what extent do you see your child is lonely?	1	2	3	4
6	To what extent do you see your child doesn't like to play with his/her friends?	1	2	3	4
7	To what extent do you see your child doesn't like school?	1	2	3	4
8	To what extent do you see your child staying alone?	1	2	3	4
9	To what extent do you see your child not enjoying food?	1	2	3	4

10	To what extent do you see your child doesn't like you / relatives?	1	2	3	4
11	To what extent do you see your child doesn't like to play much as usually?	1	2	3	4
12	To what extent do you see your child sleeping more than usually?	1	2	3	4
13	To what extent do you see your child complaining stomach ache?	1	2	3	4
14	To what extent do you see your child getting tired?	1	2	3	4
15	To what extent do you see your child refusing to take ARVs?	1	2	3	4

Part F; Children Depression Inventory (CDI) questions

Circle the appropriate answer

		Not at all	Sometime	Often	Most of the time
1.	To what extent do you feel negative mood?	1	2	3	4
2.	To what extent do you feel sad?	1	2	3	4
3.	To what extent do you feel crying?	1	2	3	4
4.	To what extent do you feel irritable?	1	2	3	4

5	To what extent do you feel lonely?	1	2	3	4
6	To what extent do you feel not playing with your friends?	1	2	3	4
7	To what extent do you feel you don't like school?	1	2	3	4
8	To what extent do you like to stay alone?	1	2	3	4
9	To what extent did you experience not enjoying food?	1	2	3	4
10	To what extent do you feel not liking your caregiver?	1	2	3	4
11	To what extent do you feel not playing?	1	2	3	4
12	To what extent do you feel sleeping more?	1	2	3	4
13	To what extent do you feel stomach ache?	1	2	3	4
14	To what extent do you feel tired?	1	2	3	4

Appendix 5: Dodoso la Kiswahili

DODOSO LA UTAFITI JUU YA KUWEKA WAZI HALI YA MAAMBUKIZI YA VVU, KUTOKEA KWA SONONA NA UBORA WA MAISHA KWA WATOTO WENYE UMRI WA MIAKA 10 HADI 15

Mpendwa Mshiriki,

Umechaguliwa kuwa sehemu ya utafiti huu unaohusu kuweka wazi hali ya maambukizi ya VVU na kutokea kwa sonona kwa watoto. Utafiti huu unafanyika chini ya Chuo kikuu cha Dodoma (UDOM). Utafiti huu unafanyika katika Wilaya tofauti za mikoa ya Dodoma na Singida.

Nitakuuliza maswali juu ya:

- Taarifa binafsi,

- Kumweka wazi mtoto juu hali yake ya maambukizi,

- Sonona kwa mtoto.

Taarifa utakazotoa zitakuwa za siri, zitatumika kwa utafiti tu na si vinginevyo.

Ushiriki wako katika utafiti huu ni wa hiari, unaruhusiwa kujiondoa katika utafiti huu pasipo kueleza sababu ya kujiondoa.

Kama una swali lolote juu ya utafiti huu unaweza kuniuliza.

Je, upo tayari kushiriki mahojiano haya?

3. Ndiyo
4. Hapana

Jina la Mdadisi: ……. Namba ya dodoso:

Mkoa: …….Wilaya: …… ……..CTC: ……

Tarehe ya mahojiano: / /

SK MWZ MWK

Mahojiano na mzazi/mlezi

Sehemu A: Taarifa za kijamii na makazi za mzazi/mlezi

1. Kijiji/mtaa unaotoka ……..

2. Una umri gani? (miaka) ☐☐
3. Jinsia ☐
    1. Kiume
    2. Kike
4. Hali ya ndoa ☐
    1. Sijawahi oa/olewa
    2. Nimeoa/Nimeolewa
    3. Tunaishi bila ndoa
    4. Kutalakiwa/Kutengana
    5. Mjane/Mgane
    6. Nyinginezo (Taja) …….
5. Muumini wa dini gani? ☐
    1. Mkristo
    2. Muislam
    3. Nyinginezo (Taja) …….
6. Kiwango cha elimu ☐
    1. Sijasoma
    2. Elimu ya msingi
    3. Elimu ya sekondari
    4. Astashahada/Stashahada
    5. Shahada/elimu ya juu
    6. Nyinginezo (Taja) ……..
7. Unafanya kazi gani? ☐
    8. Sina kazi
    9. Mkulima mdogo
    10. Mkulima mkubwa
    11. Mfanya biashara
    12. Mwajiriwa serikalini
    13. Mwajiriwa sekta binafsi
    14. Nyinginezo (Taja) ……

8. Kabila gani? ……

Section B: Taarifa za kijamii na makazi za mtoto

9. Jinsia ya mtoto

    1. Kiume
    2. Kike

10. Mtoto ana umri gani? (miaka)

11. Elimu ya mtoto?

    6. Hasomi
    7. Shule ya awali
    8. Shule ya msingi
    9. Shule ya sekondari
    10. Nyingine (Taja)

12. Je! Wazazi wa mtoto wapo hai?

    1. Wazazi wote wapo hai
    2. Mama pekee yupo hai
    3. Baba pekee yupo hai
    4. Hakuna aliye hai

13. Una uhusiano gani na mtoto?

    6. Mama yake
    7. Baba yake
    8. Bibi yake / babu yake
    9. Shangazi / Mjomba wake
    10. Nyinginezo (Taja) …….

14. Mtoto anaishi na nani?

    1. Wazazi wake wote wawili
    2. Mama pekee
    3. Baba pekee
    4. Bibi / babu
    5. Shangazi / Mjomba

6. Nyingine (Taja) …….

15. Mtoto aligundulika ana maambukizi akiwa na umri gani? ……

16. Kwa muda gani sasa mtoto amekuwa akitumia dawa (ARVs)? ……

Sehemu C: Kuweka wazi hali ya maambukizi ya VVU

17. Je, umewahi kusikia juu ya kumweka wazi mtoto kuhusu hali ya maambukizi ya VVU?

    1. Ndiyo ☐
    2. Hapana

18. Kama ni **Ndiyo**, ulisikia kutoka wapi? (***kama hapana, nenda swali la19)***

    6. Mtumishi wa afya (Daktari, Muuguzi)
    7. Redio
    8. Luninga ☐
    9. Magazeti
    10. Nyinginezo (Taja) …….

19. Je, Umewahi kushiriki katika kumweka wazi mtoto yeyote kuhusu hali yake ya maambukizi?

    3. Ndiyo ☐
    4. Hapana

20. Je! Unafikiri ni muhimu kumweka wazi mtoto kuhusu hali yake ya maambukizi?

    3. Ndiyo ☐
    4. Hapana

Kama sio, nenda swali la 22

21. Kama **Ndiyo**, Kwa nini unafikiri ni muhimu?

    .....……

    ……..……..

22. Kama hapana, eleza kwa nini **Siyo** muhimu,

……

……

23. Je, mtoto uliyekuja naye alishawekwa wazi juu ya hali yake ya maambukizi

    3. Ndiyo ☐
    4. Hapana

24. Kama **Ndiyo**, Ni aina gani ya taarifa alipatiwa juu ya ugonjwa alionao? (***kama hapana, nenda swali la 30)***

    8. Taarifa ya awali pasipo kutaja VVU (Partial disclosure)
    9. Taarifa kamili pamoja na kutaja VVU (Full disclosure) ☐
    10. Taarifa endelevu baada ya kumjurisha kuwa anaishi na VVU (Post disclosure)

25. Je, mtoto alikuwa na umri gani wakati anawekwa wazi juu ya ugonjwa alionao? ☐☐

26. Je, mtoto alikuwa kiwango gani cha elimu wakati anawekwa wazi juu ya ugonjwa alionao?

    6. Hakuwa anasoma
    7. Chekechea/shule ya awali ☐
    8. Shule ya msingi
    9. Shule ya sekondari
    10. Nyinginezo (Taja) …….

27. Ni nini kilipelekea hadi kumweka wazi mtoto juu ya hali yake ya maambukizi?

    1. Ushauri wa wahudumu wa afya
    2. Alifikia umri wa kuwekwa wazi
    3. Ushauri hutoka kwa wana familia ☐
    4. Kushuka kwa kinga ya mwili ya mtoto
    5. Kutokukubali kumeza dawa (ARV) mara zote.
    6. Kushambuliwa na magonjwa nyemelezi
    7. Nyinginezo (Taja) ……...

28. Je, hali ya afya ya mtoto ilikuwaje kipindi anawekwa wazi juu ya ugonjwa alionao?

    5. Alikuwa anaumwa sana (amelazwa hospitalini)
    6. Anaumwa (hajalazwa hospitalini) ☐
    7. Hakuwa anaumwa chochote.
    8. Nyinginezo (Eleza) …….

29. Ni vitu vipi haswa mtoto alielezwa kuhusu ugonjwa unaomfanya ahudhurie kliniki?

    ……

    ……

Kwa mtoto ambaye hajawekwa wazi (Kama amewekwa wazi nenda sehemu D)

30. Ni sababu zipi zilizopelekea kutokumweka wazi mtoto juu ya hali ya ugonjwa alionao?

    6. Unyanyapaa
    7. Hofu ya mwitiko hasi kwa mtoto
    8. Inaweza muathiri mtoto kisaikolojia
    9. Inaweza muumiza mtoto
    10. Nyinginezo (Eleza) ……...

31. Je, una mpango wa kumweleza mtoto wako juu ya ugonjwa alionao?

    3. Ndiyo
    4. Hapana

32. Una mpango wa kumweka wazi akiwa na umri gani?

Sehemu D: Ubora wa maisha ya mtoto (WHO QOL)

Sehemu hii inahusu ubora wa maisha ya mtoto, afya na nyanja nyingine za maisha.

		Duni sana	Duni	Si duni, si nzuri	Nzuri	Nzuri sana
1	Unaonaje ubora wa maisha ya mtoto wako kwa ujumla?	1	2	3	4	5
2	Unaionaje afya ya mtoto wako?	1	2	3	4	5
3	Unaonaje hali ya kipato chako ukilinganisha na mahitaji ya mtoto wako?	1	2	3	4	5
4	Kwa kiwango gani mtoto wako anapata nafasi ya kuburudika?	1	2	3	4	5
5	Unayaonaje mazingira anayoishi mtoto wako?	1	2	3	4	5
6	Unauonaje upatikanaji wa huduma ya afya kwa mtoto wako?	1	2	3	4	5
7	Unaionaje aina ya usafiri mnaoutumia kufika kliniki na mtoto wako?	1	2	3	4	5

Sehemu E; Maswali kwa wazazi/walezi juu ya dalili za sonona kwa watoto wao.

		Hakuna kabisa	Mara chache	Mara kwa mara	Maranyingi zaidi
1	Kwa kiwango gani umeona mtoto wako akiwa na hali isiyo ya kawaida?	1	2	3	4
2	Kwa kiwango gani umeona mtoto wako akiwa na huzuni?	1	2	3	4
3	Kwa kiwango gani umeona mtoto wako analia bila sababu?	1	2	3	4
4	Kwa kiwango gani umeona mtoto wako amechukia?	1	2	3	4
5	Kwa kiwango gani umeona mtoto wako akiwa katika hali ya upweke?	1	2	3	4
6	Kwa kiwango gani umeona mtoto wako hapendi kucheza na wenzake?	1	2	3	4
7	Kwa kiwango gani umeona mtoto wako hapendi shule?	1	2	3	4
8	Kwa kiwango gani umeona mtoto wako akipenda kukaa peke yake?	1	2	3	4
9	Kwa kiwango gani umeona mtoto wako hafurahii chakula?	1	2	3	4
10	Kwa kiwango gani umeona mtoto wako hakupendi?	1	2	3	4

11	Kwa kiwango gani umeona mtoto wako hapendi kucheza kama kawaida yake?	1	2	3	4
12	Kwa kiwango gani umeona mtoto wako analala zaidi kuliko kawaida yake?	1	2	3	4
13	Kwa kiwango gani umeona mtoto wako analalamika maumivu ya tumbo?	1	2	3	4
14	Kwa kiwango gani umeona mtoto wako amechoka bila kufanya kazi yoyote?	1	2	3	4
15	Kwa kiwango gani umeona mtoto wako akikataa kumeza dawa zake (ARVs)?	1	2	3	4

Sehemu F; Mahojiano ya sonona Kwa mtoto (CDI)

		Hakuna kabisa	Mara chache	Mara kwa mara	Maranyingi zaidi
1	Ni kwa kiwango gani umewahi kuhisi hali isiyo ya kawaida kwenye mwili wako?	1	2	3	4
2	Ni kwa kiwango gani umewahi kuhisi huzuni?	1	2	3	4
3	Ni kwa kiwango gani umewahi kuhisi kulia bila kupigwa?	1	2	3	4

4	Ni kwa kiwango gani umewahi kuchukia bila sababu?	1	2	3	4
5	Ni kwa kiwango gani umewahi kuhisi upweke?	1	2	3	4
6	Ni kwa kiwango gani unahisi kutokufurahia kucheza na rafiki zako?	1	2	3	4
7	Ni kwa kiwango gani unapenda kukaa peke yako?	1	2	3	4
8	Ni kwa kiwango gani umewahi kutofurahia chakula?	1	2	3	4
9	Ni kwa kiwango gani unahisi kutowapenda ndugu zako?	1	2	3	4
10	Ni kwa kiwango gani unahisi kutofurahia kucheza?	1	2	3	4
11	Ni kwa kiwango gani unahisi kulala kuliko kawaida?	1	2	3	4
12	Ni kwa kiwango gani huwa unahisi maumivu ya tumbo?	1	2	3	4
13	Ni kwa kiwango gani huwa unahisi mwili kuchoka?	1	2	3	4
14	Ni kwa kiwango gani umewahi kuhisi kukosa usingizi?	1	2	3	4

********** Asante kwa ushirikiano wako **********

Mwisho

Appendix 6: Ethical Clearance Letter

THE UNIVERSITY OF DODOMA

OFFICE OF THE DEPUTY VICE CHANCELLOR - ARC

DIRECTORATE OF RESEARCH, PUBLICATIONS AND CONSULTANCY

P.O. BOX 259, DODOMA, TANZANIA TEL: +255 026 2310301 FAX: +255 0262310005 WEBSITE: www.udom.ac.tz

Ref: UDOM/DRP/134/VOL VII/ **27th May 2020**

To: Loveness Isaya Urassa
The University of Dodoma

RE: REQUEST FOR ETHICAL CLEARANCE

This is to inform you that the proposal titled ***"Assessing the Impact of Disclosure on Depressive Symptoms among HIVE infected children aged 10-15 years receiving HIV services at Central Zone of Tanzania"*** has been granted ethical clearance.

Furthermore, as the Principal Investigator of the study the following conditions must be fulfilled:

- Progress report is submitted to the University of Dodoma.
- Permission to publish the results is obtained from the University of Dodoma.
- Copies of final publications are made available to the University of Dodoma.
- Sites: Dodoma, Singida and Tabora

Approval is valid for a duration provided for under clause five (5) of the Ethical Clearance Form.

Best Regards,

Dr. Ambrose Kessy
Chairperson- Institutional Research Review Committee (IRREC)

C: C: Deputy Vice Chancellor-Academic, Research and Consultancy

Appendix 7: Research Clearance Letter from the University of Dodoma

THE UNIVERSITY OF DODOMA
OFFICE OF THE VICE CHANCELLOR

P.O. BOX 259
DODOMA, TANZANIA
TEL: +255 (0)26 2323001 FAX: +255 (0)26 2323001 EMAIL: vc@udom.ac.tz

Ref. No. MA.84/261/02 27th May, 2020

Regional Administrative Secretary
Dodoma Region

Regional Administrative Secretary
Singida Region

Regional Administrative Secretary
Tabora Region

RE: REQUEST FOR RESEARCH CLEARANCE

The purpose of this letter is to introduce to you **Ms. Loveness Isaya Urassa. with Reg. No. HD/UDOM/00217/T.2018** who is a bonafide student of the University of Dodoma and who is at the moment required to conduct research. Our students undertake research activities as part of their study programmes.

In accordance with government circular letter Ref. No. MPEC/R/10/1 dated 4th July 1980; the Vice-Chancellor of the University is empowered to issue research clearances to staff members and students of the University on behalf of the government and the Tanzania Commission for Science and Technology (COSTECH). I am pleased to inform you that I have granted a research clearance to the student listed above.

I therefore, kindly request you to grant her any help that may help her to achieve her research objectives. Specifically, we request your permission for her to work at Dodoma, Singida and Tabora Regions meet with all HIV-infected children aged from 10-15 years and caregivers who live with HIV-infected children in your Institutions connection with her research.

The title of her research is ***"Assessing the Impact of Disclosure on Depressive Symptoms among HIVE infected children aged 10-15 years receiving HIV services at Contral Zone of Tanzania"***

The period of her research is from April to August, 2020 and it will cover planned Regions.

Should there be any restrictions, you are kindly requested to advise us accordingly. In case you require further information, please do not hesitate to contact us through the Directorate of Research and Publication, Consultancy, and Institutional Collaboration. P.O Box 251, Dodoma. Tel.No. + (255) 262310301 Email:research@udom.ac.tz

Yours Sincerely,

VICE CHANCELLOR
THE UNIVERSITY OF DODOMA
P.O.BOX 259
DODOMA, TANZANIA

Prof. Faustine K. Bee
VICE CHANCELLOR

Appendix 8: Research Clearance Letter from RAS Singida

UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

Phone: +255(026) 2502170
Fax: +255(026) 2502078
E-mail: ras@singida.go.tz
Website:http://www.singida.go.tz
In reply please quote:

Singida Regional Commissioner's C
Bomani Street,
P.O Box 05,
SINGIDA

Ref. No. BA.381/391/01'D'/113

4th June, 2020

The Municipal Director,
Singida Municipal Council.

The District Executive Directors,
Singida, Manyoni and Ikungi,
SINGIDA REGION.

Ref: RESEARCH CLEARENCE FOR MS. LOVENESS ISAYA URASSA

The above named is a bonafide student of the University of Dodoma.

2. We have received a letter from the said University with Ref. No. MA.84/261/02 dated 27th May, 2020 requesting permission for the student to conduct research in our Region titled ***"The Impact of disclosure on Depressive Symptoms among HIV Infected Children aged 10 – 15 years receiving HIV Services at Central Zone of Tanzania".***

3. The research period is from the Month of April to August, 2020 in the Health facilities within your area as per attachment to this letter.

4. With this letter you are kindly requested to allow her to conduct the research in your District Council and provide any necessary support needed for the purpose.

5. Yours Sincerely,

B. Boniface
For: REGIONAL ADMINISTRATIVE SECRETARY
SINGIDA

Copy:

MS. Loveness Isaya Urassa,
University of Dodoma,
P.O Box 259,
DODOMA.

Appendix 9: Decision Letter on my Dissertation Defense

THE UNIVERSITY OF DODOMA

COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

P.O. Box 395 DODOMA **TANZANIA.**
TEL: +255-26-230009 E-MAIL: healths@udom.ac.tz
FAX: +255-26-230009
Website address: www.udom.ac.tz

28/08/2020

Loveness Urassa,
MSc. Pediatric,
P.O BOX 395,
DODOMA.

RE: DECISION LETTER ON YOUR DISSERTATION DEFENSE

Refer to the heading stated above.

Following your dissertation defense on 27/08/2020, titled "***The effect of disclosure on depressive symptoms among HIV infected children aged 10-15 years in central zone Tanzania***", the panelist raised the following comments: -

1. The aim and the design does not match (finding effect using cross sectional study is not appropriate), suggested to use the word influence.
2. Reconsider how to categorize the depressive symptoms using std guide.

The final verdict was **PASS** with **MINOR** revision. You are required to work on the raised comments and submit one copy of reviewed version of your dissertation on 4/09/2020.

.....
Dr. Saada Ali
Head-Department of Nursing and Midwifery