

**MENTAL HEALTH PROBLEMS EXPERIENCED BY
HIV POSITIVE ADOLESCENTS; A CASE OF CHOMA
DISTRICT, ZAMBIA**

BY

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A Dissertation submitted to the University of Zambia in partial fulfilment of the requirements for the Degree of Master of Science in Mental Health and Psychiatric Nursing

THE UNIVERSITY OF ZAMBIA

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NOVEMBER 2017

DECLARATION

I Lyambai Kestone do hereby declare that except for the assistance acknowledged, the work presented in this Dissertation for the Master of Science in Mental Health and Psychiatric Nursing is the result of my own work. This has not been presented either in part or wholly for any other Degree and is not being currently submitted for similar purposes.

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CERTIFICATE OF COMPLETION OF DISSERTATION

I, **Dr. Lonia Mwape**, having supervised and read this dissertation is satisfied that this is the original work of the author under whose name it is being presented. I confirm that the work has been completed satisfactorily and approve it for final submission.

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CERTIFICATE OF APPROVAL

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DEDICATION

To my wife, Racheal Mhlanga Lyambai, for your overwhelming support, encouragement and belief in me, and my children Limpo, Kestone Jr and Nathan who were deprived of fatherly love and care while I worked on this thesis. Thank you and May the Good Lord continue blessing you.

ACKNOWLEDGEMENT

A project of this nature is virtually impossible to complete without the input of several people. While it is difficult to mention by name all those who contributed towards the completion of this research work, I wish to express deep gratitude to the following:

Dr. Lonia Mwape, my main supervisor and mentor for her invaluable guidance, encouragement, and dedication throughout the research process.

Dr. Ravi Paul and Mrs. Martha Mwelwa, who were my Co-supervisors, for their guidance and encouragements throughout the process of research and success of this work.

The late Mrs Patricia Ndele for her encouragement, unending support and believing in me.

The Adolescents living with HIV in Choma District and their caregivers who so willingly gave up their time to take part in the study.

The University of Zambia through the Norwegian Programme for Capacity Development in Higher Education and Research for Development (NORHED project) for the financial support without which the project would not have been possible.

My fellow students especially, Kabwe Chitundu, Sanford Nyirongo and Humphrey Chuungu for their invaluable input and support throughout the research process. Thank you for your enthusiasm and always being there.

Finally, am obligated to express my deepest appreciation to my family and friends including all those not mentioned for their inputs and support in making the study a success.

ABSTRACT

This study aimed to determine the Mental Health Problems experienced by HIV positive adolescents in Choma District. A cross sectional descriptive study design involving both quantitative and qualitative approaches was used to conduct the study. Using the Strengths and Difficulties Questionnaire (SDQ), data was obtained from 103 HIV positive adolescents receiving treatment at Choma General Hospital. Information about mental health services was obtained qualitatively from 10 nurses working in the mental health unit and the Antiretroviral clinic. Systematic random sampling was used to select the adolescents while the nurses were selected conveniently. Data was analysed using SPSS version 22 and Chi square test was employed to establish the relationship between independent and dependent variables. Responses from the semi structured interview were analysed qualitatively in terms of common themes.

The results showed that more than three quarters of the adolescents had mental health problems as revealed by both the Self rated SDQ (85.4%) and the Parent rated SDQ (62.5%). Of this number, 57.3 percent had multiple mental health problems predominantly emotional and peer problems. The study also found a statistically significant relationship between level of stigma and presence of mental health problems ($X^2 = 1.123$, $P = 0.003$).

In conclusion the study demonstrated that multiple mental health problems are prevalent among adolescents with HIV/AIDS in Choma District yet are most often undiagnosed. In addition, adolescents with high levels of internalized stigma are more likely to have multiple mental health problems.

The findings suggest need to integrate psychiatric services into routine care of HIV infected adolescents, routine screening of adolescents for mental health problems using validated tools and provision of continued professional development related to mental health so that nurses are able to correctly assess, diagnose and manage these problems. These steps are essential to improve the mental health of adolescents living with HIV/AIDS.

Key words: Mental Health Problems, Experienced, Adolescents, HIV positive

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LIST OF ABBREVIATIONS AND ACRONYMS

ADHD	Attention Deficit Hyperactive Disorder
ART	Antiretroviral Therapy
CBT	Cognitive Behavioural Therapy
CDC	Centres for Diseases Control
CSO	Central Statistics Office.
DSM-V	Diagnostic and Statistical Manual for Mental Disorders-5th Edition
GNC	General Nursing Council
HIV/ AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
IQ	Intelligence Quotient
MOH	Ministry of Health
NAC	National AIDS Council
PBM	Problem Behaviour Model
PMTCT	Prevention of Mother to Child Transmission
SDQ	Strengths and Difficulties Questionnaire
SPSS	Statistical Package for Social Sciences

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CHAPTER ONE

INTRODUCTION

1.1 Background information

Mental health problems make a substantial contribution to the burden of disease worldwide. According to World Health Organization (WHO), mental disorders account for an estimated 12.3 percent of the global burden of the disease (WHO 2010). It is further estimated that, neuropsychiatric conditions account for up to 15 percent of all disability-adjusted life-years, and up to 30 percent of those attributable to non-communicable diseases. In South Africa, the Department of Health estimates that one out of four South Africans has or is affected by mental illness, but only 10-15 percent get help for their mental illness (Uys & Middletons 2008), while in Zambia, about 20 percent of the population is estimated to have mental illness and of that percentage, about 10 percent have severe mental disorders (Simenda 2013).

These disorders are attributed to an assortment of factors such as substance/alcohol abuse, transport injuries, low social economic status, child abuse and the existence of chronic diseases such as Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS), diabetes and Cerebral Vascular Accidents (Cassels 2013). Among these factors, HIV is regarded as one of major factors contributing to an increase in mental disorders. According to Duffy et al. (2015), people living with HIV are more than twice as likely to experience a mental health disorder.

Since its discovery in the 1980s, HIV has continued to be a major public health concern accounting for a substantial part of the global burden of disease. WHO (2015) estimates that 36.9 million people globally were living with HIV/AIDS at the end of 2013. Of these, almost two thirds live in Sub-Saharan Africa. The prevalence among adolescents is similar to that among adults with about 90 percent of the more than 3.4 million adolescents infected with HIV living in Sub-Saharan Africa (Lowenthal et al. 2014).

In Zambia, the prevalence of HIV is estimated to be 13.3 percent (CSO Zambia et al. 2014). This indicates a decrease of 0.7 percent in comparison with the 2007 survey. However, the transmission rates are still high with 1.6 percent of the adult population becoming newly infected each year (UNAIDS 2009).

HIV is a serious health concern among adolescents in Zambia. By the end of 2012, more than 120,000 children (0-14 years) were reported to be living with HIV (CDC 2014). A substantial number (90 %) of the HIV infected adolescents acquired the infection perinatally (NAC 2015). However, recent studies indicate a decline in this fraction due to the scaled-up Prevention of Mother to Child Transmission (PMTCT) policy of testing all pregnant women for HIV, treating HIV infected with combination ART, prophylaxis ART for the new-born, avoidance of breastfeeding and the use of elective caesarean sections (Mburu et al. 2014).

Before the introduction of ART in 1995, 50 percent of HIV infected children died before the age of two (Laughton et al. 2013). However, with the advent of life-prolonging antiretrovirals, HIV infection is no longer the “death sentence” in children that it was in the pre- antiretroviral era (Gadow et al. 2010). There is a marked reduction in the mortality rates among the perinatally HIV infected children. In view of this marked reduction in mortality rates, HIV has now become a chronic illness among adolescents (Busza et al. 2014).

Adolescence, the period in human growth and development from ages 10 to 19 (WHO 2014) has a series of physical and mental changes. These changes are due to the hormonal mechanisms of the hypothalamus, pituitary gland, adrenal glands and the gonads. Neuroimaging data from adolescents shows that the brain volume attains its peak by 10.5 years of age among girls and 14.5 years among boys while the grey matter decreases and the white matter increases (Giedd 2008). This increase in white matter is associated with greater axon myelination, increased neural transmission speed and better quality of brain connectivity. These structural and functional changes in different brain areas are associated with greater planning skills, higher memory capacity, language skills, higher intelligence quotient (IQ) and better reading skills.

On the other hand, in children infected with HIV, neuroimaging studies reveal increased grey matter and decreased white matter relative to healthy controls (Sarma et al. 2014). These findings are supported by Laughton et al. (2013) who indicate that there are alterations in subcortical structures among HIV infected patients. The common alterations include neural loss across the entire prefrontal cortex, cerebral atrophy and white matter demyelination resulting from the direct and indirect effects of HIV.

Directly, longstanding HIV infection acquired when the immune system is not developed results in damage to the brain tissue while indirectly, the HIV related opportunistic infections will cause the damage and distinctive chronic clinical complications that cause severe morbidity. As well as dealing with chronic illness, HIV-infected adolescents have to confront psychosocial issues such as stigma, death of parents, abuse, poverty, maintain adherence to drugs, and learn to negotiate sexual relationships, while undergoing rapid physical and psychological development (Mellins et al. 2011). These stressors, plus the direct and indirect effects of HIV on the young brain leads to lower intelligence, poorer academic performance, cognitive deficits, language deficits, reduced information processing speed and attention deficit (Gadow et al. 2010). This puts the HIV infected adolescents at higher risk of mental health problems compared to their uninfected peers.

This is of concern since stress and psychological status may affect disease progression in HIV infected individuals and psychosocial factors have been shown to have clinically significant relationships with immune related outcomes for HIV (Menon et al. 2007). However, there has been little research into mental health of HIV positive young people, especially in Zambia. In view of this, it is important to explore the nature and estimates of the mental health problems experienced by adolescents infected with HIV. This information will guide care providers, researchers and policy makers towards more effective HIV care for infected adolescents to enhance their mental health.

1.2 Statement of the problem

Many researchers have reported the existence of mental health problems among HIV infected adolescents throughout the world (Cruz & Cardoso 2015; Gadow et al. 2010; Lowenthal et al. 2014; Maturo et al. 2015; Mellins et al. 2010; Strasser & Gibbons 2014). Most of the adolescents in this category meet the Diagnostic and Statistical Manual for mental disorders – 5th edition (DSM V) criteria for psychiatric disorders, particularly anxiety, depression and conduct disorders. Global prevalence of mental disorders among these adolescents varies greatly (15% – 80%) and comparisons between studies are limited owing to different methodologies and presentation of results. However, a rate of 29 percent is usually quoted in most studies which reflects a significant level of prevalence (Malee et al. 2011).

Little is known about this special group in Zambia. Apart from Menon et al. (2009) who studied Mental Health of HIV positive Adolescents in Lusaka, and Imasiku and Banda (2010) who focused on the Mental Health Problems of Children in Residential Homes, there is generally dearth of research in the field of child and adolescent mental health.

In Choma District, the nature, prevalence and correlates of Mental health problems among adolescents with HIV has not been well established. This is despite there being an increase in the number of children with HIV reaching adolescence.

Table 1 Adolescents with HIV in Choma District

Year	Adolescents with HIV	Percent increase
2011	1,513	
2012	1,826	17.1
2013	2,070	13.4

Source: CGH (2015)

The increase in the number of children with HIV reaching adolescence is a source of concern because of the increased risk of mental health problems. Mental health problems among this population has implications for later physical health through its impact on health-related behaviour such as smoking, substance abuse, unsafe sex and non-adherence to medications.

These can be detrimental to the health and well-being of HIV positive adolescents and may place others at risk for secondary HIV-transmission, treatment failure and drug resistance, which may hamper their long-term treatment and result in more significant comorbidities creating a significant public health challenge (Mellins et al. 2010).

1.3 Research questions

- 1.3.1 What are the common mental health problems experienced by HIV positive adolescents in Choma District?
- 1.3.2 What factors are associated with mental health problems among HIV positive adolescents in Choma District?

1.4 Research objectives

1.4.1 General objective

To explore the Mental Health problems experienced by HIV infected adolescents in Choma District of Zambia.

1.4.2 Specific objectives

- 1.4.2.1 To determine the common mental health problems experienced by HIV infected adolescents.
- 1.4.2.2 To determine the prevalence of mental health problems among HIV infected adolescents.
- 1.4.2.3 To identify the factors associated with mental health problems among HIV infected adolescents.

1.5 Justification

Literature shows that there is an increase in the number of children with HIV reaching adolescence (Vreeman et al. 2015; Mofenson & Cotton 2013; Mellins & Malee 2013). This increase is related to the introduction of life prolonging antiretrovirals. However, new challenges are emerging in the treatment of children with HIV, including a number of risks to their psychological wellbeing. Garvie et al.'s (2014) findings support this assertion and reveal an increase in the prevalence of mental health disorders among adolescents infected with HIV. Similarly, Habib et al. (2013), Lowenthal et al. (2014), and Mellins and Malee (2013) revealed an increase in mental health problems among HIV positive adolescents.

However, the nature, estimates and the correlates of the mental health problems experienced by adolescents infected with HIV in Choma District is not known. This has created a knowledge gap which this study plans to fill. It is envisaged that findings of this study will contribute to better care provided to HIV infected adolescents by providing research evidence needed in order to support interventions regarding mental health needs and services of such patients. Above all, the study findings will inform policy in the development of strategies on how to improve quality of care offered to HIV infected adolescents.

1.6 Theoretical framework

The present study is positioned in the Problem Behaviour Model (PBM), a psychosocial framework formulated by Richard Jessor (Jessor 1991). This theory consists of three independent but related systems. These systems include; the personality system, perceived environmental system and behaviour system (Zamboanga et al. 2004). The personality system includes variables such as individual values, expectations, beliefs and attitudes, while the perceived environment system comprises of social factors such as family and peers. On the other hand, behaviour system consists of problems such as delinquency and other maladaptive behaviours (Murphy et al. 2001).

The variables in each of the systems may instigate an individual to engage in problem behaviour or control one against involvement in problem behaviour. Therefore, the controls in this theory act as protective factors while instigators are the risk factors. According to Zamboanga et al. (2004), protective factors promote health by increasing the likelihood of engaging in health-enhancing behaviour, providing personal and social controls against health-compromising behaviours, and by providing a supportive social environment. Risk factors, in contrast, decrease the likelihood of engaging in health-enhancing behaviour. Further, the higher the number of risk factors, the more the likelihood of developing problem behaviour (Jessor 1991).

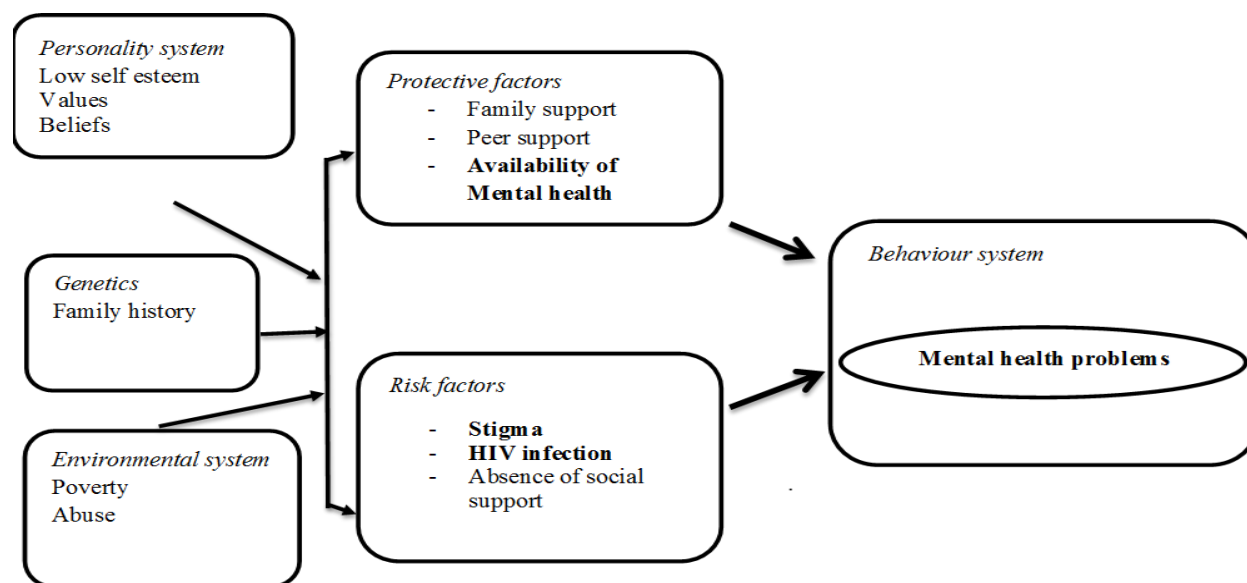


Figure 1 modified problem behaviour model: adapted from Jessor (1991).

The motivation to use the PBM emanates from existing literature indicating that HIV positive adolescents have various risk factors that predispose them to the development of problem behaviours. Problem behaviour is behaviour that is socially defined as a source of concern, or as undesirable by society and its institutions of authority (Jessor 1991). Some of the major risk factors include abuse, neglect, family dysfunction, acute stress, drug abuse, stigma, lack of social support and absence of mental health services.

The concept of three “Ps” i.e. precipitating, predisposing and perpetuating is used to illustrate these risk factors (Henderson & Martin 2014). Predisposing factors may include temperament, developmental delay and low Intelligence quotient (IQ). Precipitating factors on the other hand may include, family dysfunction, family in acute stress and absent parenting. Perpetuating factors include low income, conflict and hopelessness. Considering that various risk factors predispose adolescents with HIV to mental health problems, interventions or services for such children should have a holistic approach. This includes adolescent diagnostic procedures, medication, family therapy, behavioural therapy, and counselling among others. The model also takes into account the effect of protective factors in promoting positive health and deterring health compromising behaviour, but also the Protection.

This theory therefore suggests that, effective mental health services for adolescents with HIV need sustained collaboration from key stakeholders; service users, parents, education services, social and health care managers, voluntary organizations and child and adolescent mental health services. These range from primary care services to highly specialist services.

In summary, the PBM views mental health problems in HIV infected adolescents as stemming from a combination of various factors which include genetic, socio-economic, familial and psychological factors. The same factors which this study hopes to assess.

1.7 Variables and cut off points

1.7.1 **Dependent Variable** - In this study, the dependent variable is mental health problems of HIV infected adolescents.

1.7.2 **Independent Variable** - In this study the independent variables are mental health services and stigma.

Table 2:conceptual and operational definitions

Variable	Conceptual definition	Operational definition	Cut off point	Indicator	Question #
Dependent variable					
Mental health problem	This term indicates a level of symptoms of mental ill health that have led to impairment in one’s day-to-day life (Hagel 2003).	The existence of depression, anxiety, conduct disorder, peer problems and hyperkinetic disorders in an adolescent with HIV.	High	If one scores 20 – 40	Questions 7 - 31
			Moderate	If one scores 16 – 19	
			Low	If one scores 0 – 15	
Independent variable					
Mental health services	Mental health services are those services that aim to provide assessment and brief psychosocial interventions as well as diversion to longer-term services whilst providing support and advice for staff working with children and adolescents (Funk et al. 2008).	Services that provide assessment, treatment and psychological support to HIV infected adolescents.	Present	If one scores 6 – 10	Questions 43 - 47
			Absent	If one scores 0 – 5	
Stigma	Stigmatization is the feeling of disgrace or discredit, which sets a person apart from others (Byrne 2000).	Feeling bad to be associated with HIV.	High	If one scores 14 – 22	Questions 32- 42
			Moderate	If one scores 7 -13	
			Low	If one scores 0 – 6	

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the relevant literature related to the present study. To identify relevant literature, a data search was conducted using the key words “HIV infected”, “adolescents”, “mental health problems”, “stigma” and “mental health services”. The chapter is divided in sections according to the variables of the study. The first section is an introduction to the chapter which is followed by the discussion of mental health problems in the second section. The third section looks at mental health services while the fourth section presents literature on stigma.

2.2 Mental health problems

A number of studies have consistently demonstrated existence of mental health problems among adolescents infected with HIV (Mellins et al. 2010; Maturo et al. 2015; Strasser & Gibbons 2014; Lowenthal et al. 2014; Cruz & Cardoso 2015; Vreeman et al. 2015). Studies conducted by Williams et al. (2013) and Mellins et al. (2012) found higher than expected rates of depression, anxiety, hyperactivity, learning and other behavioural problems among children born with HIV. Williams et al. (2013) found that many children and adolescents with HIV present with a varied range of mental health problems. Most of the children meet clinical criteria for psychiatric disorder, particularly attention-deficit/hyperactivity disorder (ADHD). Pao et al. (2000) reported that 85 percent of the youths with HIV met diagnostic criteria for at least one primary DSM-IV disorder, and 44 percent met criteria for current major depression.

Similarly, Mellins et al. (2011) found a high percentage of HIV exposed adolescents met diagnostic criteria for a mental health problem. These results suggest that children born to HIV-infected women, regardless of their own HIV status, are at risk of multiple mental health problems that require consideration in prevention and health care programs. However, contrary to above cited studies suggesting a possible link between HIV infection and mental health issues, Gadow et al. (2010) generally indicated that adolescents with HIV were not at greater risk for current psychiatric problems than HIV negative peers living in similar environmental settings.

This discrepancy may be attributed to the fact that their HIV positive group received higher rates of intervention for mental health problems than the comparison sample. Further to this, the majority (59%) had undetectable viral loads, excellent CD4 percent, and only 23 percent had current or past events of AIDS-defining illnesses. This is indicative that their sample had well-controlled HIV disease. Therefore, their results may not apply to patients who are more adversely affected with HIV and hence it is possible that rates of mental health problems may be higher in adolescents with HIV compared to their uninfected peers.

In Africa, like the rest of the world, there is emerging evidence indicating that adolescents with HIV are especially at risk for poorer psychiatric outcomes (Laughton et al. 2013). This is supported by Lowenthal et al. (2014) who revealed that the frequency of psychiatric admissions among HIV-infected adolescents is significantly higher in sub-Saharan Africa compared with that in the general adolescent population. The difference in prevalence may be attributed to the effects of HIV on the brain.

Although there is some literature on the mental health of HIV positive adolescents in Zambia, few studies described the prevalence of mental health problems experienced by HIV infected adolescents. Of the studies that explored this topic, Menon et al (2009) found that participants were at high risk of mental health problems as indicated by the higher score of total difficulties and twice the risk of being abnormal for total emotional and peer problems, when compared to the British sample. This finding is in accord to other studies that have indicated the existence of mental health problems among adolescents with HIV.

From the foregoing studies, it is suggestive that adolescents with HIV are a high-risk population when it comes to mental health problems, an aspect which calls for more research in this area to underpin interventions.

2.3 Mental health services

Provision of mental health services is an essential aspect of care in the management of HIV infected adolescents as this group is at high risk of mental health problems (Vranda & Mothi 2013). However, in spite of the number of studies identifying mental health problems among this group, there is scanty data on the existence of mental health services targeting this special group.

In support of this, Mellins and Malee (2013) noted that there are few identified evaluations of mental health services or evidence-based mental health treatment programmes targeting adolescents living with HIV. This reveals a deficit between the mental health needs of adolescents infected with HIV and the mental health services available to them globally.

In the United States, most adolescents living with HIV have been engaged in comprehensive HIV programs resulting in better identification and treatment of mental health needs, including psychopharmacologic and psychotherapeutic interventions and greater support (Malee et al., 2011; Mellins et al., 2011).

The mental health services are typically accessed by the adolescents at follow up, and according to Gadow et al. (2010), 37 percent of youths with HIV had received either a behavioural or pharmacological intervention for an emotional or behavioural problem and 44 percent had been evaluated for special education. From this revelation, it can be inferred that services are readily available and accessible by a good number of adolescents with HIV in the United States of America.

Consistent with reports from prior studies conducted among adolescents, both HIV infected and HIV non-infected, provision of standard Mental Health services over time are positively associated with good mental health of the community (Duffy et al. 2015). This is attributed to early identification of mental health problems leading to reduction in the number of negative life events and neighbourhood stressors experienced.

Mellins and Malee (2013)'s findings indicate absence of dedicated health-care services for adolescents living with HIV in Africa. Without appropriately tailored services for the special needs of this age group, adolescents find themselves seeking paediatric-based or adult-orientated HIV care. There is therefore an urgent need to develop and rapidly implement policies and programmes aimed at early diagnosis and improvement of care provided to the expanding numbers of adolescents who are growing up with HIV.

In addition, Mellins and Malee (2013) notes a dearth of specialized mental health service providers like psychiatrists, psychologists and other mental health professionals in low and middle-income countries. This is a concern as it is in the same countries where there is need for mental health promotion programmes for people living with HIV given the high rates of mental health disorders among this group.

Kidia et al. (2014), writing from Uganda propose that carefully selected and trained adolescents living with HIV can effectively help the delivery of mental health care for fellow adolescents living with HIV. This view is supported by Fabri et al.'s (2015) findings which reveal that trained HIV-positive Rwandan youths deliver a trauma-informed cognitive behavioural intervention to improve adherence to antiretroviral therapy in young people with HIV. This approach is one of the cost-effective evidence-based mental health treatment programmes that can be used in African countries where the dearth of psychiatrists, psychologists and other mental health professionals is significant. Duffy et al. (2015) highlights the value of integrating mental health into routine HIV care and recommend that mental health screening should take place at each visit and referral to higher levels of care when one is identified to have mental health problems.

In Zambia, the situation is no different as mental health services are lacking in most ART sites. This is emphasized by Strasser and Gibbons (2014) who indicates that the current state of affairs must be improved, particularly in relation to under-resourced and inadequate psychosocial support in HIV services for children and adolescents. Further Mburu et al. (2014) argues that “a limited number of health care workers have adequate knowledge and skills to comfortably practice paediatric and adolescent HIV care with respect to pre-test and post-test counselling, disclosure of HIV to children or helping care takers to disclose HIV status to children, providing on-going supportive counselling and address care and treatment adherence issues.” These gaps are the missing link to providing comprehensive paediatric and adolescent HIV care.

In trying to bridge these gaps, the Zambian Ministry of Health (MOH) with its cooperating partners implemented a task-shifting or task-sharing approach in which community-based lay counsellors under the supervision of healthcare professionals are providing an increasing number of services, including mental health services. A training curriculum for Psychosocial Care and Counselling of HIV-infected Children and Adolescents was developed to strengthen psychosocial support by peer educators through competency-based training and supportive supervision (Strasser & Gibbons 2014).

However, even with the introduction of psychosocial counsellors, mental health of patients with HIV is still not receiving much attention as basic adherence counselling has remained the key component of HIV treatment programs (Strasser & Gibbons 2014). Further, the ministry has concentrated on consistently supplying antiretroviral drugs, skilled clinicians to prescribe them and health systems to monitor treatment failure leaving out the effective psychosocial interventions that enhance adherence and retention rates, and support optimal development. Less attention in terms of time, money and resources have been allocated to mental health counselling and screening.

2.4 Stigma

Stigma is one of the major problems faced by adolescents infected with HIV. The HIV stigma experienced can be enacted, anticipated or internalised. Enacted stigma involves experiences of discrimination, stereotyping and or prejudice from others due to one's HIV infection. Anticipated stigma includes expectations of enacted stigma. Internalised stigma refers to a situation where stereotyping and or prejudice involving negative feelings and beliefs about people living with HIV have been internalised by people living with HIV (Watson & Corrigan 2001). This stigma has a lot of negative consequences for adolescents living with HIV.

Brener et al. (2013) hypothesized that those with visible HIV symptoms experienced more HIV-related stigma and had poorer outcomes on a range of psychological and mental health measures than those who were able to conceal their HIV. This maybe so because for many people living with HIV, disclosure of their HIV status may be under their personal control; however, for those with visible symptoms of their illness, disclosure may no longer be a choice.

Therefore, stigma is perceived to be high in those with visible symptoms of HIV. In addition, Mavhu et al. (2013) suggests that those with visible HIV symptoms have poorer mental and physical health than those without visible HIV symptoms.

According to Abubakar et al. (2016), stigma and rejection seem to remain prominent in the lives of HIV infected adolescents in Kenya. Many adolescents and their caregivers believe that if they disclose their status to peers and teachers, they risk rejection, isolation, and stigmatization. This is a concern as HIV infection remains a stigmatized disease many decades since its discovery.

In addition, stigma was found to be among the main barriers to adherence to medication, evidenced by higher rates of ARV treatment failure and development of resistance to the drug regime were much higher among adolescents and young adults. Similarly, evidence from Ethiopia suggests that the stigma associated with HIV/AIDS has a negative effect over one's decision to get tested for HIV and to obtain adequate health care (Alemu et al. 2013). Stigma hides HIV from the public, resulting in reduced pressure for behavioural change. Further, almost all of the key informants mentioned that stigma and discrimination affect self-esteem of adolescents living with HIV. This results in stress that in turn leads to mental health and other health-related problems. Many of such people would not even utilize the care and support rendered to them.

There are widespread stigmatizing and discriminatory attitudes towards adolescents living with HIV in Zambia (Strasser & Gibbons 2014). These findings confirm and add weight to the results from the other studies conducted in Africa. In addition, mental health difficulties were prevalent among HIV-positive adolescents and were associated with incomplete adherence and stigma. Resources are needed to reduce HIV stigma and address mental health among HIV-positive adolescents in low-resource settings. This will improve not only mental health, but may also improve ART adherence and virologic suppression, improving overall health of the individual and reducing the risk of HIV transmission to others (Chipimo 2011).

Therefore, stigma influences disclosure, disease management, and social relations. There is therefore an urgent need to get a greater understanding of stigma and its ramifications and to develop programmes aimed at combating HIV-related stigma especially among adolescents.

2.5 Conclusion

The literature review consistently shows that adolescents infected with HIV are at higher risk of mental health problems than the general population. The results show that a large proportion of these children have mental health problems which are severe enough to be noticed and diagnosed. The high rates of psychiatric disorders are cause for concern given previous work indicating that mental health problems are associated with sexual and drug risk behaviour, and HIV treatment non-adherence. Therefore, provision of mental health services for adolescents living with HIV is critical to provide appropriate, long-term care and support, and to improve HIV-related morbidity and mortality.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods that were used in the present study. It comprises of the research design, study population, sample selection, measures, pretesting and ethical considerations.

3.2 Research design

A cross sectional descriptive study design was employed to obtain quantitative descriptions of mental health problems among HIV infected adolescents. To support information obtained from the adolescents and to determine some of the factors associated with mental health problems, information about mental health services was obtained from the nurses working in ART clinic and the mental health unit. This design was appropriate for this study as it helped the researcher understand the mental problems of HIV positive adolescents.

3.3 Research setting

This study was undertaken at Choma General Hospital located in the newly created provincial capital of the Southern province of Zambia. Choma District is about 300 kilometres from Lusaka and 200 kilometres from Livingstone. According to the CSO, MOH and ICF International, (2014), Choma District has a population of 286, 228. Most of the people live in the villages surrounding Choma town. Most of those staying in Choma town are government workers while those in the surrounding areas are farmers.

The hospital at which the study took place is a second level referral hospital with bed capacity of 204. It has all the main sub-specialties including a Mental Health Unit and ART clinic. The Mental Health Unit has a bed capacity of 20 with eight mental health nurses and two Clinical Officer psychiatry. The ART clinic provides both adult and paediatric HIV/AIDS services daily except for weekends. The clinic has a cumulative total of 9,552 clients on therapy of which about 2,065 are adolescents (Choma General Hospital 2015).

This site was purposively selected as a research setting for this study because it was a convenient location in terms of accessibility and has a sufficient study population.

Further the hospital comprises study participants whose characteristics satisfy the study requirements.

3.4 Study population

For this study, the study population comprised of two groups. The first group were adolescents infected with HIV receiving treatment at the research setting. The second group were nurses working in the ART clinic and the mental health unit at Choma General Hospital.

3.5 Target population

The target population in the study were 103 adolescents infected with HIV who accessed treatment at Choma General hospital during the study period plus nurses working in the ART clinic and the mental health unit at Choma General Hospital.

3.6 Accessible population

The accessible population were adolescents infected with HIV plus nurses working in the ART clinic and the mental health unit at Choma General Hospital, and met the criteria and were willing to participate in the study.

3.7 Sample selection

Systematic random sampling was used to select the adolescents to act as a representative sample. During this process, every K^{th} case at the study site was selected from the sampling frames. The K (sampling interval) was established by dividing 160 (the accessible number of HIV positive adolescents receiving treatment at Choma General Hospital) by 103 (the sample size) giving an interval of every 2nd person.

For the nurses, convenient sampling was used to select nurses to act as a representative sample. During this process, nurses who were available, perceived to be typical of the population and met the inclusion criteria were selected to participate in the study.

3.7.1 Inclusion criteria

All HIV infected adolescents aged between 11 and 17 years receiving treatment from Choma General Hospital were eligible to participate in the study. This age group was selected because the data collection tool (Strengths and Difficulties Questionnaire Youth version) is specifically designed for this age group. Further to this, good reliability and validity has been documented among this age group (Menon et al., 2009). The study also included those who consented to participate.

3.7.2 Exclusion criteria

The study sample excluded adolescents who were physically unwell (determined clinically) because they could get tired as administration of the test battery will take some time. The study also excluded those who did not give consent or ascent to participate in the study as participation was voluntary.

3.8 Sample size

In this study, a total of 103 adolescents were included in the sample. The total sample size was calculated as follows:

$$n = \frac{z^2 \times P \times (1-p)}{d^2} \quad \text{Where } z = 1.96 \text{ at } d = 0.05 \text{ and } P = 0.24$$

$$\text{The sample size required was } = \frac{1.96^2 \times 0.24 \times (1 - 0.24)}{0.05^2} = 291$$

$$\text{Final } n = \frac{n}{1 + n/N} = \frac{291}{1 + (291/160)}$$

Final n = 103

Plus – all the nurses working in ART and mental health clinic

3.9 Data collection tools

The modified youth version of the Strengths and Difficulties Questionnaire (SDQ-Y) was used to obtain quantitative data. The SDQ-Y is a self-report, behavioural screening instrument designed to be completed by children aged 11-17 years and is used to detect childhood emotional and behavioural problems. The tool had four sections with Section A containing demographic information, Section B had 25 items divided into five subscales comprising of five items each, generating scores for conduct problems, hyperactivity/inattention, emotional symptoms, peer problems and prosocial behaviours, Section C had questions on stigma, while section D had questions relating to mental health services. The SDQ was adopted for use because its reliability and validity has been well documented globally and locally (Menon et al. 2007; Imasiku & Banda 2010; Menon et al. 2009; Menon 2014).

Qualitative data was obtained using semi structured interview schedule. The focus of the interview was on mental health services/ interventions available for the adolescents living with HIV.

3.10 Validity and reliability

In this study, validity was ensured by using a tool that has been validated both globally and locally (Cronbach's $\alpha = 0.66$). Questions for the interview schedule were checked by the experts in mental health to determine if they elicit the responses on the variables to be measured.

To ensure reliability in this study, the tool was piloted at Mazabuka General Hospital. The same tools were also administered to all the respondents hence upholding equivalence reliability (Polit & Beck 2013). Member checking and cross checking with other researchers was done to ensure trustworthiness with qualitative data.

3.11 Data collection technique

For this study, a self-administered questionnaire and semi-structured interview schedule was used to collect data related to the variables. A Self-administered questionnaire was administered to the adolescents who completed the instruments after which they were retrieved. In addition to the questionnaire (self-rated SDQ) that was completed by the adolescents, the parents (guardian) were asked to complete a similar questionnaire (parent rated SDQ) though the wording was slightly different in order to have more reliable information. The researcher administered the self-rated SDQ to the adolescents who could not read or write with the help of a translated version.

To supplement information obtained from the adolescents, a semi structured interview was conducted to obtain information from the nurses working in the ART and mental health unit. The focus of the interview was on the health services/ interventions available for the adolescents living with HIV.

Before commencing the interview or administering the questionnaire, the researcher introduced himself to the study respondents and verbal permission obtained. The purpose of the study was explained and assurance of confidentiality made. When the respondents agreed to participate in the study, written consent was obtained.

3.12 Pre-test for the data collecting tools

Pretesting of the data collecting tools was conducted at Mazabuka General Hospital, a different site from the actual study site to avoid getting pre-conceived answers. Ten percent (10 respondents) of the sample for the study were selected systematically to participate in the test. The purpose of pretesting the tools was to assess for validity and reliability of the data collection tools, determine time required to administer the tool and to assess for understanding of the instruments by the respondents.

3.13 Ethical and cultural considerations

This study embraced the following basic pillars of health research ethics:

3.13.1 Ethical clearance

This research was granted ethical approval by the University of Zambia Biomedical Research Ethics Committee (*Ref: 006-02-17*) and the National Health Research Authority of Zambia (*Ref: MH/101/23/10/1*) before having contact with respondents. Written permission to conduct the study was obtained from Southern Province Medical Office and Choma General Hospital.

3.13.2 Beneficence

During the research process, respondents were not subjected to any physical harm as the study did not involve any invasive procedures. Potential risks that could have arisen from asking questions about HIV infection that might have evoked emotional reactions were explained to the participants. Prior arrangements for counselling and support was made for the anticipated emotional reactions by the participants considering the emotional nature of the topic under study. The respondents answered the questions in a comfortable environment with privacy assured and no public interference. This was done during their free time and within the shortest possible time. Respondents were provided with refreshments as they filled in the questionnaire.

3.13.3 Respect for persons

To uphold this principle, the respondents were informed of the nature of the study both orally and in written so that they could make an informed decision regarding their participation. It was explained to them that participation was voluntary without any material or financial benefits but that the study will have long term benefits as the findings will inform policy and improve patient care. Written informed consent was obtained from all the parents/guardians of the research participants with the agreement that their children's identities would not be revealed. For this reason, pseudonyms have been used throughout. All the participating children gave their written assent before administering the questionnaire. The participants were also informed that they had the right to withdraw from the study at any time without any prejudice.

3.13.4 Justice

The respondents were treated fairly, equally and without showing partiality to any one of them. Selection was done using a systematic random method in achieving the inclusion criteria for the adolescents while convenient sampling was used for selecting the nurses so that everyone is given an equal chance of being selected.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

The aim of the study was to determine the Mental Health Problems experienced by HIV positive adolescents in Choma District. A total of 103 adolescents plus a corresponding number of parents/care givers were recruited to participate in the study. No one refused to take part, but seven responses (6.8 %) were excluded because of extensive missing data giving a useable response rate of 93.2 percent. Data about mental health services was obtained from 10 nurses working in the ART clinic and mental health unit. This chapter presents the findings of the study.

4.2 Data analysis and presentation of findings

Analysis of data was done using Statistical Package for Social Sciences (SPSS) version 22 and Chi square test was employed to establish the relationship between independent and dependent variables. P values equal or less than 0.05 were considered statistically significant. The domains of the SDQs were computed using already existing computerised algorithms for predicting mental health problems to get a total score which was then correlated with mental health problems. Frequency tables and graphs were used for presentation of data.

Data obtained from the semi structured interview was analysed qualitatively in terms of common themes, patterns and interrelationships among the data.

4.3 Demographic characteristics

Table 3 Sociodemographic characteristics (96)

Variable	Frequency	Percent
Gender		
Male	40	41.7
Female	56	58.3
Age		
11 – 13	54	56.3
14 – 17	42	43.8
Level of education		
Nursery	26	27.1
Primary level	46	47.9
Secondary	18	18.8
Tertiary	6	6.3
Religious Denomination		
Catholic	21	21.9
Pentecostal	24	25
SDA	26	27.1
Jehovah's witness	5	5.2
UCZ	11	11.5
Others	9	9.4
Who they live with		
Both parents	11	11.5
Single parent	61	63.5
Other relative	24	25

Table above shows that most (58.3 %) of the respondents were females with 41.7 percent being male. More than half (56.3 %) of the respondents were between the ages 11 - 13 years while only 43.8 percent were between the age group 14 – 17.

Most of the respondents (46 %) had attained primary level education with a small number (6 %) having attained tertiary level education. Majority of the respondents (63.5%) lived with single parents, 24 (25%) with other relatives (including grandparents) and a relatively small percentage (11 %) with both parents. Majority (27.1%) of the respondents were SDA and the least were Jehovah's witnesses representing 5 percent of the study sample.

4.4 Mental health problems experienced by adolescents

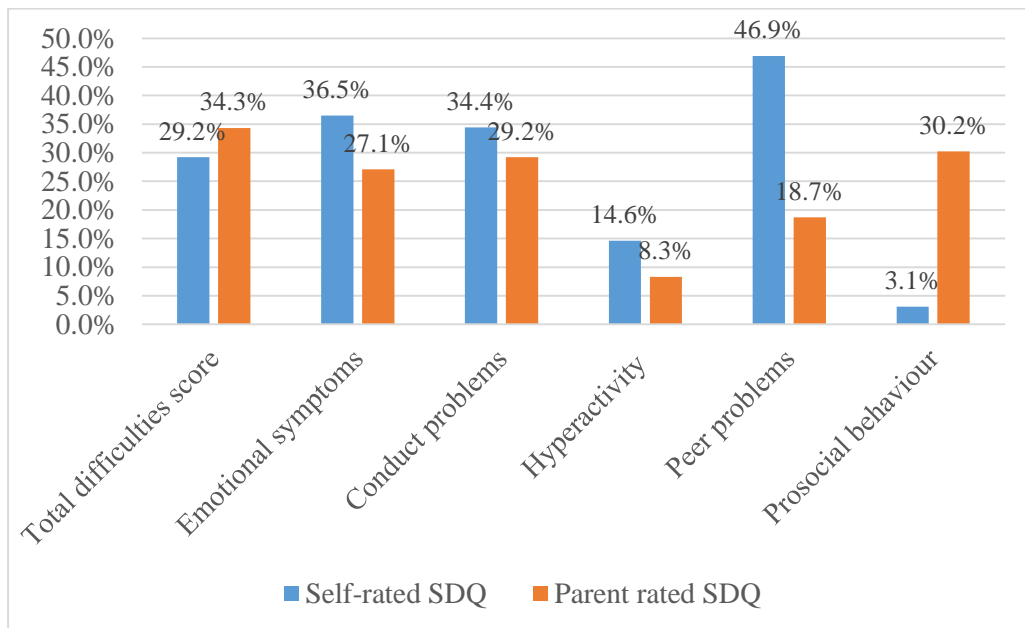


Figure 2 Self report and Parent report SDQ: Abnormal range (n = 96)

Figure 2 shows that 46.9 percent scored abnormal in the peer problems category according to the Self rated SDQ while the parents rated SDQ indicated that 8.3 percent of adolescents had abnormal hyperactivity scores.

4.4.1 Prediction for emotional disorders

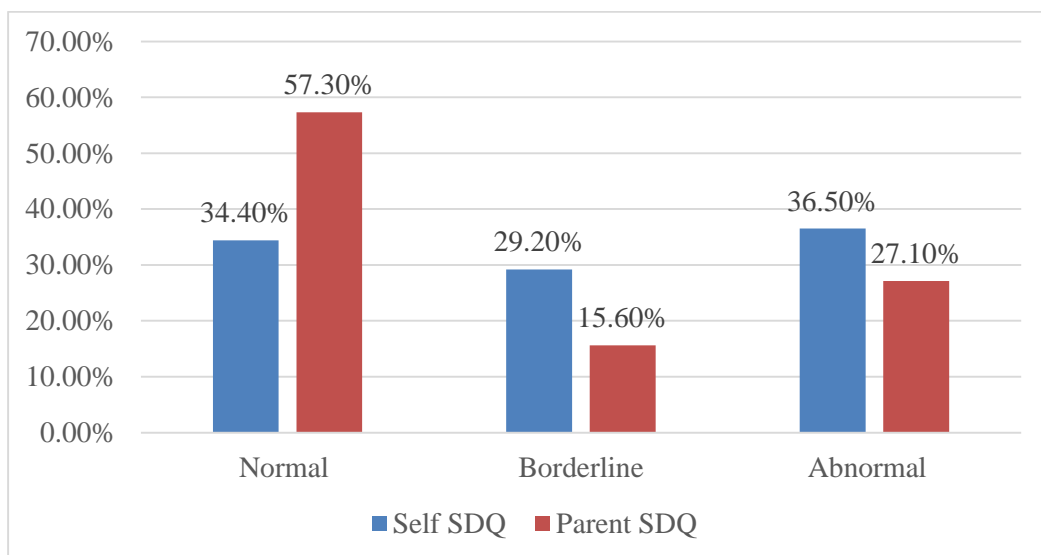


Figure 3 Prediction for emotional disorders (n=96)

Figure 3 above shows that 36.5 percent of the respondents had clinically significant emotional problems according to the self-rated SDQ while 27.1 percent were rated as having clinically significant emotional problems according to the Parent SDQ.

4.4.2 Prediction for behavioural disorders

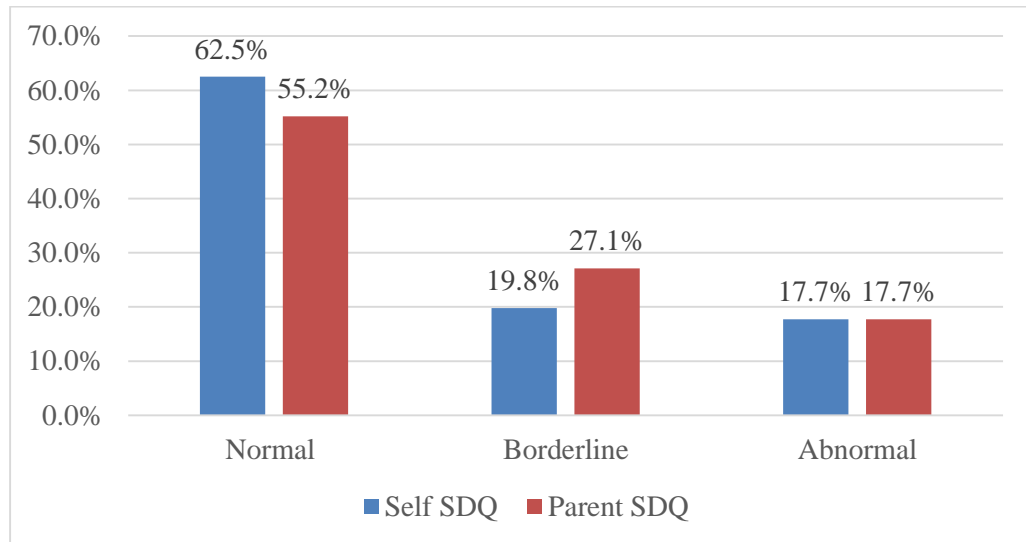


Figure 4 Behavioural problems (n=96)

The figure above shows that most of the respondents (62.5%) didn't have any clinically significant Behavioural problems according to the self-rated SDQ while only a small number (17.7%) had clinically significant Behavioural problems according to both the Self rated and the Parent rated SDQ.

4.4.3 Predictions for hyperactivity/ concentration disorders

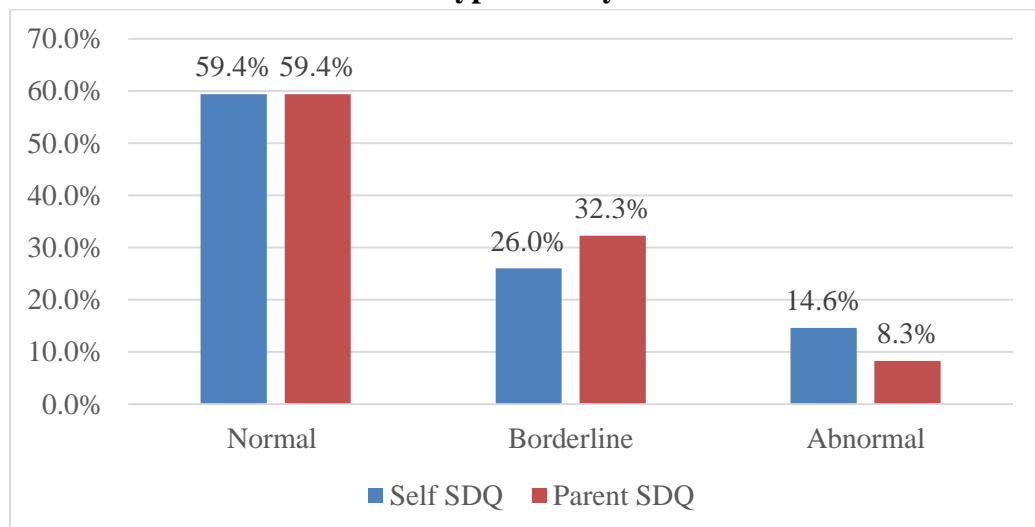


Figure 5 hyperactivity/ concentration disorders (n = 96)

The above figure indicates that majority of the respondents (59.4%) were rated as not having clinically significant hyperactive problems by both the Self rated SDQ and the Parent rated SDQ while only 14.6 percent of the respondents had clinically significant hyperactive problems according to the Self rated SDQ.

4.4.4 Prevalence of mental health problems according to SDQ clinical prediction

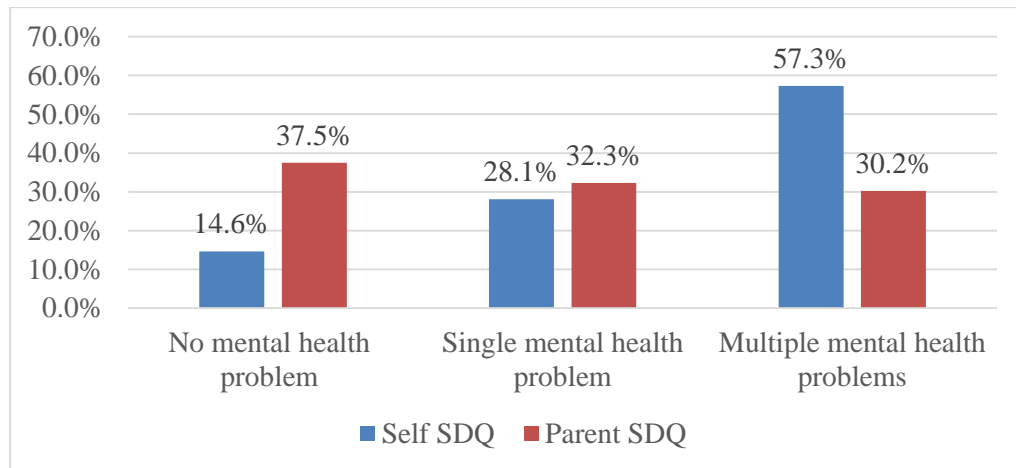


Figure 6 Prevalence of mental health problems (n = 96)

Figure 6 above shows that 57.3 percent of the respondents were assessed as having multiple mental health problems according to the self-rated SDQ while 30.2 percent were rated to have multiple mental health problems according to the Parent SDQ.

4.4.5 Distribution of respondents according to levels of internalized stigma

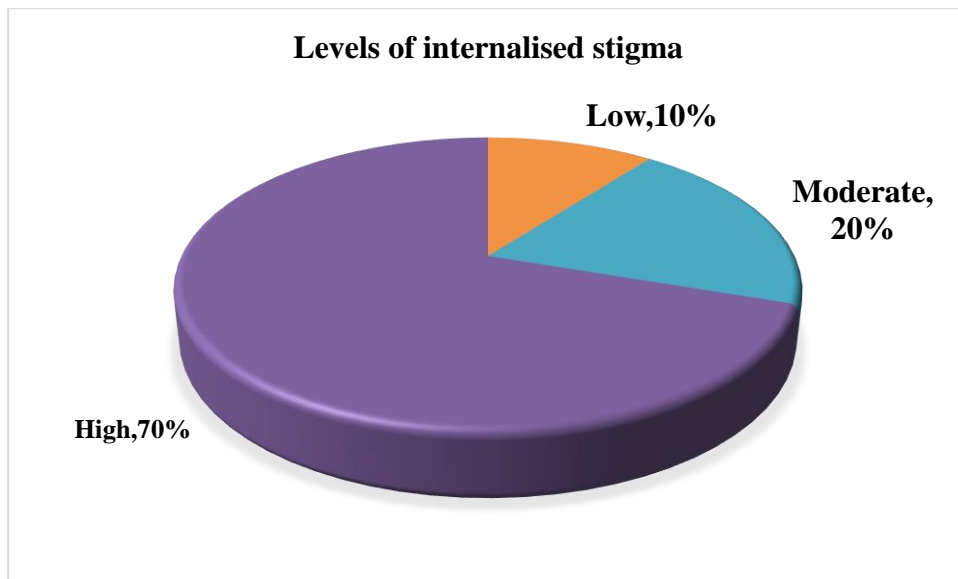


Figure 7 Levels of stigma (n=96)

Figure 7 shows that majority of the respondents (70 %) had high level of internalized stigma.

4.5 Relationship between dependent and independent variables

Table 4 Stigma in relation to mental health problems (n=96)

Levels of stigma	Mental health problem			Total	P value
	No mental health problem	Single mental health problem	Multiple mental health problems		
Low	2 (20)	2 (20)	6 (60)	10 (10.4)	X ² = 1.123 P = 0.003
Moderate	2 (10.5)	4 (21.1)	13 (68.4)	19 (19.8)	
High	10 (14.9)	21 (31.3)	36 (53.7)	67 (69.8)	
Total	14 (14.6)	27 (28.1)	55 (57.3)	96 (100)	

Table 4 shows that majority (53.7 %) of the respondents who had high level of stigma had multiple mental health problems and only 10.5 percent who had moderate level of stigma had no mental health problems. Therefore, there is a statistically significant relationship between level of stigma and presence of mental health problems (X² = 1.123, P = 0.003).

Table 5 Gender and mental health problems (n=96)

Gender	Mental health problem			Total	P value
	No mental health problem	Single mental health problem	Multiple mental health problems		
Male	9 (22.5)	11 (27.5)	20 (50)	40 (41.7)	X ² =3.593 P = 0.166
Female	5 (8.9)	16 (28.6)	35 (62.5)	56 (58.3)	
Total	14 (14.6)	27 (28.1)	55 (57.3)	96 (100)	

Table 5 above shows that 50 percent of males had multiple mental health problems compared to 62.5 percent females. Therefore, there is no statistically significant relationship between gender and mental health problems (P 0.166, X² =3.593)

Table 6 Age and mental health problems (n=96)

Age	Mental health problem			Total	P value
	No mental health problem	Single mental health problem	Multiple mental health problems		
11 – 13	27 (50)	9 (16.7)	18 (33.3)	54 (56.3)	X ² =10.847 P = 0.211
14 – 17	23 (54.8)	9 (21.4)	10 (23.8)	42 (43.8)	
Total	50 (52.1)	18 (18.8)	28 (29.2)	96 (100)	

Table 6 shows that 27 (50 %) respondents aged 11 -23 had no mental health problems while only 23 (54.8 %) of those aged 14 -17 had no mental health problems. There is therefore no statistically significant relationship between age and mental health problems (X² = 10.847, P = 0.211).

Table 7 Respondents level of education in relation to mental problem (n=96)

Education level	Mental health problem			Total	P value
	No mental health problem	Single mental health problem	Multiple mental health problems		
Nursery	9 (34.6)	8 (30.8)	9 (34.6)	26 (27.1)	X ² = 8.417 P = 0.209
Primary	28 (60.9)	6 (13.0)	12 (26.1)	46 (47.9)	
Secondary	8 (44.4)	4 (21.3)	6 (32)	18 (18.8)	
Tertiary	5 (83.3)	0 (0)	1 (16.7)	6 (6.3)	
Total	50 (52.1)	18 (18.8)	28 (29.2)	96 (100)	

Table 7 shows that 8 (44.4 %) out of the 18 respondents who had attained secondary level education had no mental health problems as compared to 6 (32 %) who had multiple mental health problems. There is no significant relationship between level of education and mental health problems ($X^2 = 8.417$, $P = 0.209$).

Table 8 mental health problems in relation to who they live with (n=96)

Who they live with	Mental health problem			Total	P value
	No mental health problem	Single mental health problem	Multiple mental health problems		
Single parent	34 (55.7)	11 (18.0)	16 (26.2)	61(63.5)	$X^2 = 1.509$ $P = 0.825$
Both parents	6 (54.5)	2 (18.2)	3 (27.3)	11(11.5)	
Other relative	10 (41.7)	5 (20.8)	9 (37.5)	24 (25)	
Total	50 (52.1)	18 (18.8)	28 (29.2)	96 (100)	

As indicated in table 8 most (55.7 %) respondents who lived with single parents had no mental health problems compared to 16 (26.2 %) respondents who had multiple mental health problems. There is therefore no statistically significant relationship between mental health problems and who the adolescents lived with ($X^2 = 1.509$, $P = 0.825$).

4.6 Mental health services for adolescents with HIV

Data obtained from the nurses working in the ART clinic and the mental health unit is presented in four core themes that address the services that provide assessment, treatment and psychological support to adolescents with HIV/AIDS.

4.6.1 Services for adolescents with HIV/AIDS

All most all (95 %) the nurses interviewed from both the ART clinic and the Mental Health Unit conceptualized an adolescent as a young person aged between 11 and 19 years receiving treatment from the ART clinic. Most of them did state that there are no specific services for these adolescents living with HIV apart from them having their own day for drug collection.

“The adolescents are treated like any other patient coming for treatment at this clinic. They are not a special group at all! We see them every Tuesday morning using the same facilities available to everyone. There is nothing like equipment and counselling rooms specifically for the adolescents.” (Nurse 1)

“When they come for drug collection, they are counselled just like any other patients in a group by the psychosocial counsellors before their vital signs are taken in readiness for review by the clinical officer or nurse on duty.” (Nurse 2)

Clients who seemed to have significant mental health problems were referred to the psychiatric clinic for screening by the clinical officer psychiatry. However most of the adolescents preferred to avoid going to the psychiatric clinic for fear of stigma and discrimination.

4.6.2 Assessment process

All the nurses indicated that assessments of the adolescents were routinely done on all the clients each time they came for reviews. Nurse one explained how the assessment of adolescents is done:

“here in ART clinic we assess the clients firstly by checking their vital signs, then we obtain history using intake form before conducting a general physical examination. After that, we collect blood samples and send to the laboratory”

The intake form used to assess the adolescents contains demographic information, presenting symptoms, health history and diagnostic results. It mainly focuses on the physical health of the clients. Nurse four stated that:

“when assessing the adolescents, we are guided by their complaints and these are mainly physical complaints.” (Nurse 4)

When asked if there was routine screening of adolescents with HIV for mental health problems, majority of the nurses stated that there were no routine or protocols followed in the screening for mental health problems among adolescents with HIV at Choma General hospital. All participants who were interviewed agreed to having heard of some screening tools for mental health problems but could not indicate the names of the tools.

Furthermore, the study established that most nurses could not screen for and diagnose mental health problems in adolescents. This could be attributed to lack of knowledge about mental health problems. For instance, when asked about the common mental health problems experienced by adolescents, most nurses mentioned mental retardation and learning disabilities and only a few (10 %) nurses from the mental health unit mentioned conditions such as ADHD and some emotional problems.

4.6.3 Psychological support

Psychological support is one of the key components in the management of patients on ART. Almost all nurses reported that this support was being offered to all the clients during routine reviews. However, it was noted that counselling done by the psychosocial counsellors was the only psychotherapeutic service available for the adolescents living with HIV.

“The psychosocial counsellors offer counselling to the clients on issues of adherence, disclosure of status and positive living”. (Nurse 3)

When asked about their awareness of cognitive behavioural therapy (CBT) and other psychotherapeutic services, only six percent mentioned having heard of CBT while twenty-five percent said they had heard about other psychotherapy services such as group therapy and family therapy even though they are not competent enough to offer them. The rest of the participants showed ignorance.

4.6.4 Staffing

Adolescents with HIV receiving treatment at Choma General hospital are attended to in the ART clinic. The clinic is managed by a registered nurse with the help of two other registered nurses, five enrolled nurses, plus one enrolled midwife. On the other hand, the mental health unit is manned by five registered mental health nurses plus three enrolled mental health nurses. These nurses work on a full-time basis in this clinic. However, it is important to note that the same nurses working in the adult ART clinic are the same ones managing the paediatric ART clinic. These nurses are supported by one medical doctor plus three clinical officers. The clinic is also staffed with seven psychosocial counsellors who mainly work as volunteers. It was also noted that only two of the nurses were trained in child and adolescent HIV counselling.

The general observation was that most of the staff expressed lack of understanding of childhood mental health problems and hence had challenges screening and identifying mental health problems in the adolescents. If they suspected a child to have a mental health problem, they would refer such a child to the mental health unit for assessment and treatment. None of the health workers in the facility had some in-service trainings in mental health and psychiatry apart from the routine clinical presentations done at the hospital.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter presents the discussion of the findings of our study. The chapter is divided in sections according to the variables of the study. The first section is an introduction to the chapter which is followed by the discussion of the demographic characteristics of the study sample in the second section. The third section discusses the variables under study.

5.2 Demographic characteristics

In the present study, the sample included 56 girls (58.3%) and 40 boys (41.7%). This finding was expected as currently in Zambia, there are slightly more females than males and the HIV prevalence is higher among females than males (CSO Zambia et al. 2014). Gender was included in the present study because it has been documented that gender has an influence on mental health of individuals. According to Mellins et al. (2012) girls were more likely to present with any psychiatric disorder and anxiety disorders, while boys were more likely to present with behavioural disorders, specifically ADHD.

Among the 96 respondents, most (56.3%) were in the age range 11 – 13 compared to only 41.7 percent aged 14 – 17.

Most of the respondents (47.9%) had attained primary level education with a small number (6 %) having attained tertiary level education. The reasons for this distribution maybe because the sample comprised of a relatively young age. Further to this, mostly children in rural Zambia start school mainly after the age of 7 years.

All the respondents were Christians, broken down as follows; majority (27.1%) were Seventh Day Adventist followed by Pentecostal at 25 percent, Roman Catholics at 21 percent and Jehovah's witnesses had the least (5 %) representation. This distribution shows that Zambia is predominantly a Christian nation with Roman Catholics and SDA constituting a large proportion of the general population (CSO et al. 2014).

Majority of the respondents (63.5%) lived with single parents, 24 (25%) with other relatives (including grandparents) and a relatively small percentage (11 %) with both parents. The current study finding does not collaborate with Menon et al. (2009)'s findings indicating that majority of participants (55.2%) lived with both parents while only 25 percent lived with a single parent. The discrepancy is probably because in the present study, most of the adolescents had lost one parent to HIV because they acquired it perinatally.

5.3 Mental health problems

The findings of the current study show that more than three quarters of the adolescents had mental health problems as revealed by both the Self rated SDQ (85.4%) and the Parent rated SDQ (62.5%). Of this number, 57.3 percent and 30.2 percent had multiple mental health problems as indicated by the self-rated and parent rated SDQ respectively. This demonstrates that many adolescents who participated in the study had clinically significant mental health problems.

The findings of the present study support previous research evidence (Mellins & Malee, 2013; Menon et al., 2009) which generally suggest that adolescents with HIV face an increased burden of mental health challenges compared with the general population. Kamau et al. (2012) affirms that 48 percent of adolescents with HIV were found to have psychiatric morbidity with a significant number (25 %) of participants having more than one psychiatric disorder. Because of these problems, rates of psychiatric hospitalizations are three times higher among adolescents with HIV compared to the general population (Gaughan et al. 2004).

However, contrary to this assertion, Gadow et al. (2010) indicates that adolescents with HIV are not at greater risk for current psychiatric problems than HIV negative peers living in similar environmental settings. Similarly, Chernoff et al (2009) found that HIV positive adolescents were no more likely to have psychiatric symptoms than age-matched HIV exposed uninfected controls.

An inquiry into the specific mental health problems experienced by adolescents with HIV showed a high prevalence of emotional and peer problems. These mental health problems mainly manifest in various distressing behaviours such as agitation, a depressed mood most of the day, a diminished ability to think or concentrate, aggression, self-harm, substance misuse and other activity that compromises sexual health. This finding is in accord with results from previous studies (Kamau et al., 2012; Menon et al., 2009; Vreeman, McCoy, & Lee., 2017) indicating a high prevalence of emotional and peer problems among adolescents with HIV compared to non-infected adolescents.

Das et al. (2016) reported that among the HIV positive adolescents, 45.3 percent suffer from psychiatric-morbid constituting emotional disorder (41.7 %), conduct disorder (37.5 %), somatization (33.3 %) and learning-disorder (29.2 %). A review of eight studies by Vreeman et al. (2015) on the prevalence of psychiatric disorders amongst HIV- infected children and youth (aged 4 to 21 years) using the DSM-IV found high rates of anxiety (24%) and depression (25%).

On the contrary, Scharko (2006) found significantly higher levels (29 %) of Attention Deficit Disorder in comparison with the other mental health problems among adolescents with HIV. Further to this Pao et al (2000) reports that the prevalence of anxiety, mood, and other behavioural disorders were the same between the HIV-exposed groups.

The discrepancy in prevalence and types of mental health problems may be attributed to methodological limitations, including small sample sizes, differences in tools used and heterogeneous definitions. Further to this, many of the studies of mental health in HIV positive adolescents conducted to date lack comparison groups and are mainly cross sectional, which makes it difficult to compare the prevalence of mental health challenges in this population to the general population. There is therefore urgent need to conduct longitudinal comparison studies to help draw conclusions about the prevalence of mental health problems and the potential contribution of HIV on the observed rates of mental health problems.

5.4 Stigma and mental health problems

Consistent with assertions by Waluyo et al. (2015) and Mupambireyi et al. ((2014) that stigma is very prominent among adolescents with HIV we found that majority of the respondents (69.8 %) had high level of internalized stigma. This high prevalence of self-stigma is a source of concern because of its damaging effect on the mental wellbeing of people living with HIV by breaking down the confidence to seek mental health services.

The study also found that majority (65.4 %) of the respondents who had high level of internalised stigma had multiple mental health problems while only 14.3 percent of those had low level of internalised stigma had no mental health problem. The results suggest that internalised stigma associates significantly with mental health problems ($X^2 = 1.123$, $P = 0.003$). Therefore, stigma is a significant predictor of mental health problems among adolescents with HIV in Choma district.

These findings are consistent with Brener et al. (2013) who reported that those with HIV-related stigma had poorer psychiatric outcomes than those who were able to conceal their stigma. Further, Yi et al. (2015) study, revealed that higher levels of mental disorders remained significantly associated with higher levels of stigma and discrimination in families and communities and higher levels of internal stigma. Similarly, Dow et al. (2016) noted that Mental health difficulties were prevalent among HIV-positive adolescents and were associated with incomplete adherence and stigma.

The results indicate that stigma is one of the main factors associated with mental health problems hence there is need for community based interventions to reduce HIV stigma and address mental health among HIV-positive adolescents. This will improve not only mental health, but may also improve ART adherence and virologic suppression, improving overall health of the individual and reducing HIV risk behaviour.

5.5 Age and mental health problems

Results table 6 showed that 27 respondents aged 11 -23 had no mental health problems similarly 23 of those aged 14 -17 had no mental health problems. This finding showed no statistically significant relationship between age and presence of mental health problems among adolescents with HIV in Choma District ($X^2 = 10.847$, $P = 0.211$). Therefore, age is not a significant predictor of mental health problems among adolescents with HIV in Choma District. This is supported by Mellins et al. (2012) who found no statistically significant age differences in relation to prevalence of psychiatric disorders at follow-up.

On the contrary, Das et al. (2016) indicated that age as an independent variable is associated significantly ($P < 0.001$) with psychiatric morbidity. In the same vein, Malee et al. (2011) highlighted that young age was associated with Mental Health Problems among HIV positive youth.

The current study finding indicates a need for large scale longitudinal study with sites systematically selected to explore the area of age in relation to mental health problems in Zambia.

5.6 Gender and mental health problems

In the present study, females (58.3 %) seemed to have more mental health problems than males (41.7 %) however the difference did not reach a level of significance ($P = 0.166$, $X^2 = 3.593$). An analysis of the SDQ domains and gender showed no significant differences in the total SDQ score, emotional difficulty score, hyperactivity score, conduct problems and peer problems. However, boys were found to have higher scores on the prosocial scale indicating more positive social behaviours such as kindness to others.

This finding is consistent with Ng et al. (2015) who found depression rates to be higher among HIV-infected adolescent females than males in Rwanda, but this difference was not significant. In agreement, Menon (2014) in her pilot of the SDQ among Zambian adolescents reported no significant relationships between gender and any of the SDQ scores.

Nevertheless, given the lack of significant relationship between these two constructs, this assertion is rather contestable. Based on Mellins et al. 's (2013) systematic review which found that, among HIV-infected youth, female sex is a risk factor for depression and anxiety, while male sex is a risk factor for behavioural problems.

The inconsistent results regarding gender differences in the present study may be influenced by a small sample size and lack of representation of urban population. Therefore, this suggests a need for larger study which will be representative of both the urban and the rural population.

5.7 Level of education and mental health problems

The findings of this study have revealed that respondents level of education does not influence their mental health as shown in table seven. The majority (28) of the respondents who had attained primary level education had no mental health problems while only 12 of those who had multiple mental health problems had attained primary level education. There is no significant relationship between level of education and mental health problems ($X^2 = 8.417$, $P = 0.209$).

These findings are contrary to Regidor et al. (1999) who concluded that educational level has some significant influence on the different dimensions of health. The findings are further supported by Veldman et al. (2014) who indicated that education attainment of the respondents was significantly associated with mental health problems during adolescence. In the present study, the lack of association between education level and mental health problems may be because majority of the sample were in primary level and most were drawn from a rural setup.

5.8 Who they live with and mental health problems

Results showed that majority of the respondents (63.5%) receiving ART at Choma General hospital lived with single parents and a relatively small percentage (11 %) with both parents. This finding was unexpected because with the scaling up of ART, HIV related mortality has reduced significantly. Menon (2009) noted that more than half of participants (55%) with HIV lived with both parents but nearly all (97%) lived with at least one family member.

The differences could be related to the differences in the study settings with Menon's study having been conducted in Lusaka city while this study was conducted in Choma a typical peri urban area with most of the respondents coming from the surrounding villages.

An investigation to determine possible relationship between who the respondents lived with and presence of mental health problems reviewed no statistically significant relationship ($X^2 = 1.509$, $P = 0.825$) as demonstrated in table eight. This finding is contrary to Menon et al (2014) who noted that children who did not live with a family member had higher scores on the hyperactivity subscale ($Z = 2.01$, $P = 0.04$) although parental loss was not related to the child's mental health. A previous study by Lester et al (2002) had also found that bereavement was not associated with higher rates of psychologic disorder and it may be that other factors, such as quality of foster care, may be more important determinants of psychologic outcomes.

5.9 Mental health services

The findings have shown a deficit in the provision of mental health services to adolescents with HIV in Choma district, confirming what Strasser and Gibbons (2014) found in selected Districts of Zambia. We found that there are no dedicated health services for adolescents living with HIV hence subjecting them to the same services accessed by the general population. Such services however may not categorically address needs and preferences of this growing population. When asked if there was routine screening of adolescents with HIV for mental health problems, majority of the nurses stated that there were no routine or protocols followed in the screening for mental health problems among adolescents with HIV at Choma General hospital. The impression created from such a response was that there is limited attention to the provision of mental health services to adolescents with HIV. This makes cases to remain undetected and untreated. This is in line with (Mellins & Malee, 2013) who reported that mental health problems are common among adolescents with HIV yet are often undiagnosed and may become severe or chronic if unrecognized and untreated.

Lack of age appropriate services which consider the needs and preferences of this growing population for the disclosure of HIV status to adolescents or for any other common mental disorders such as depression and anxiety maybe a contributing factor to the increase in the number of adolescents with mental health problems.

Severe shortages in mental health workers was noted to be one of the main barriers to the effective provision of mental health services for adolescents with HIV. For instance, there is no qualified Psychiatrist or even a clinical psychologist within the district. The critical shortage of Health-care staff has also been reported by Fabri et al. (2015). According to him, this shortage makes mental health care access for this population in sub-Saharan Africa inadequate. For the participants in the present study, mental health needs are supposed to be met by the one Clinical Officer Psychiatry plus the six Registered Mental Health nurses. However, these health workers are primarily found within the psychiatric unit hence it is difficult for the adolescents with HIV to benefit from their services as the psychiatric unit is highly stigmatized hence a good number of adolescents shun it.

In view of the severe shortages in mental health workers, the study advocates for a task-shifting approach which typically includes the training of lay community members in the delivery of basic psychosocial care such as cognitive behavioural therapy and problem-solving therapy. This task-shifting approach and the use of adolescent HIV-positive peer educators in offering peer-based psychosocial support could help reduce the mental health problems among adolescents.

The study also found that most nurses expressed lack of understanding of mental health problems among adolescents with HIV. Because of the lack of knowledge, nurses had challenges screening, identifying and managing mental health problems among adolescents with HIV. In addition, almost all nurses expressed lack of awareness of CBT and other Psychotherapeutic services. This is in line with Tumwesigye and Abate (2008) who argues that “a limited number of health care workers have adequate knowledge and skills to comfortably practice paediatric HIV care with respect to pre-test and post-test counselling, disclosure of HIV to children or helping care takers to disclose HIV status to children provide. The lack of knowledge about mental health issues is a hindering factor to the improvement of the health status of adolescents with HIV.

5.10 Conclusion

This study represents one of the first to explore mental health problems among adolescents with HIV/AIDS in Choma District and it adds to the global knowledge on this subject. It is hoped that this work will highlight the need to further explore the influence of HIV on the mental health of adolescents living with HIV.

Several conclusions can be drawn from this study, the most important being adolescents with HIV are a high-risk population to mental health problems. A considerable proportion of this population have multiple mental health problems indicative of significant impairment. In addition, adolescents with high levels of internalized stigma are more likely to have multiple mental health problems. With regards to mental health service provision, there is a significant gap which is because of lack of training in mental health for staff attending to these adolescents.

Drawing from the present study findings which has revealed that mental health problems are prevalent among adolescents with HIV yet are most often undiagnosed by the nurses, providing adequate continued professional development related to mental health is essential.

5.11 Implications to nursing

The findings of the study have the following implications:

5.11.1 Nursing education

The study findings revealed that most of the nurses expressed lack of understanding of childhood mental health problems and hence had challenges screening and identifying mental health problems in the adolescents. This implies that there is need for GNC and nurse training institutions to put more emphasis on mental health and psychiatry in the curriculum to expand nurses' body of knowledge and practice.

Tutors and clinical instructors handling students should be adequately trained in mental health and psychiatry to enable them teach and supervise students effectively. Ministry of Health to provide policy direction and support the training of nurses on management of mental illnesses through continued medical education.

5.11.2 Nursing practice

The findings of the current study show that more than three quarters of the adolescents had mental health problems. Of this number, 57.3 percent and 30.2 percent had multiple mental health problems as indicated by the self-rated and parent rated SDQ respectively.

However, most of these problems are undetected as there is no routine screening for mental health problems in the ART clinics. This implies that, there is need for health providers to routinely screen adolescents with HIV for mental health problems using validated tools.

Further, MOH to develop more effective awareness-raising trainings and education programmes amongst health workers for them to correctly assess, diagnose and manage these problems among adolescents with HIV.

5.11.3 Nursing research

The review of literature showed that limited research has so far been conducted in the area of child and adolescent mental health in Zambia. Nurse researchers therefore, need to investigate more on different aspects of adolescent mental health and make recommendations. This will improve not only the body of knowledge in mental health but also the mental health of the adolescents in Zambia.

5.12 Recommendations

Based on the findings, the following recommendations are made:

5.12.1 To the Government

- i. The Government through the MOH to integrate psychiatric services into the routine care of HIV-infected children.
- ii. MOH to develop more effective awareness-raising trainings and education programmes amongst health workers in order for them to correctly assess, diagnose and manage these problems among adolescents with HIV.
- iii. ART clinics should be staffed with qualified mental health workers/clinical psychologists to handle the ever-increasing psychological problems effectively.
- iv. The Government needs to increase funding for research programmes in the field of mental health as it has been realized that there are significant gaps in the field of mental health.
- v. The curriculum for psychosocial counsellors should be revised so that they are equipped to handle the psychological problems unlike the current focus on HIV counselling.

5.12.2 To the management of Choma General Hospital

- i. The management should ensure Health providers should routinely screen adolescents with HIV for mental health problems using validated tools.
- ii. The management should organize in-service training programmes for its professional staff who are involved in the management of adolescents with HIV update them on the management of such problems.
- iii. The management with help of stake holders should form support groups for adolescents living with HIV where they can openly talk and share their experiences of living with HIV. This will help reduce the levels of stigma among the adolescents.

5.12.3 For future research

- i. Since the current study focused on the mental health of adolescents, there would be need to conduct a comparative study between adolescents with HIV and those that are not with similar economic and social circumstances.

5.13 Limitations of the study

Firstly, the small number of participants in this study limits the generalization of the outcome.

Resources could not allow the study to be conducted on a large scale because the project was not adequately funded and therefore, the site was conveniently selected. This means that the results may not be representative of the larger population.

5.14 Dissemination of findings

At the end of the study, the executive summaries will be disseminated to the various stake holders such as Choma General Hospital, Zambia Union of Nurses Organisation, General Nursing Council, Ministry of Health, Mental Health Users Networks and other Mental Health Interest Groups. Bound copies of the report will be distributed to the Directorate of Research and Graduate Studies (DRGS), medical library and the school of nursing sciences library.

A manuscript has already been submitted to the Professional Journal of Nursing for wide readership.

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APPENDICES

APPENDIX I: INFORMATION SHEET

TOPIC: MENTAL HEALTH PROBLEMS EXPERIENCED BY HIV POSITIVE ADOLESCENTS; A CASE OF CHOMA DISTRICT, ZAMBIA

INTRODUCTION

Dear participant,

I Kestone Lyambai a student from the University of Zambia in the School of Nursing Sciences, pursuing a Master of Science in Nursing is kindly requesting for your participation in the research study mentioned above. The overall aim of this study is to explore the mental health problems of adolescents with HIV. Before you decide whether or not to participate in this study, I would like to explain to you the purpose of the study, any risks or benefits and what is expected of you.

Your participation in this study is entirely voluntary. You are under no obligation to participate; you may choose to participate or not to participate. Even after you have joined the study you are free to withdraw as you wish, and no privileges will be taken away from. If you agree to participate, you will be asked to sign a consent in front of some one. Agreement to participate will not result in any immediate benefits. Please ask where you do not understand.

PURPOSE OF THE STUDY

This study in which you are being asked to participate is being undertaken in order to obtain information on Mental health problems of adolescents with HIV. This is important, as the data from the study will assist the policy makers and implementers of mental health services to find ways and means of improving the quality of care offered to adolescents perinatally infected with HIV in Zambia.

PROCEDURE

After you have signed the consent form, and have had a chance to ask questions, you will be given a questionnaire which has questions concerning mental illness. Please kindly answer all the questions as honestly as possible. Answering the questions will take about 30 minutes.

RISKS AND DISCOMFORTS

There is no risk and discomfort involved in this research though part of your time will be utilized to fill in the questionnaire. Some questions may seem to be sensitive and personal. If you will need further discussion, it will be offered to help you understand the topic more.

BENEFITS

By taking part in this study, you will be able to provide us with information that will help relevant authorities and policy makers to come up with strategies and policies that will help to improve the care offered to adolescents living with HIV. No money will be given in exchange for information obtained, but information on mental health problems and HIV will be provided.

CONFIDENTIALITY

The information you will give will be treated confidential, but in case you are found to need some interventions or help, the information will be passed on only to those health workers from whom you will get the help. Recorded information will be locked away and will only be reached by me the researcher and will be destroyed at the end of the study. For protection of your identity, no names or any other personal information will be needed from you. The Ministry of Health, the University of Zambia Research Ethics Committee or the school of Medicine may review your records again this will be done with confidentiality.

APPENDIX II INFORMED CONSENT FORM

I confirm that I have read/ had the purpose of this study explained to me and I understand the purpose, the benefits, risks and discomforts and confidentiality of the study. I further understand that, participation in this study is voluntary and that am free to withdraw from this study at any time without giving a reason.

I _____ (Names) agree to take part in this study.

Signed/ Right thumb print: _____ Date: _____
(Participant)

Signed: _____ Date: _____ (Witness)

PERSONS TO CONTACT FOR PROBLEMS OR QUESTIONS

1. Kestone Lyambai, University of Zambia, Department of Nursing Sciences, P.O. Box 50110, Lusaka. Cel: 0977 458595. Email: kestonelyambai@gmail.com
2. Dr. Lonia Mwape (PhD), Head of Department, Department of Nursing Sciences, University of Zambia, P.O. Box 50110, Lusaka. Cel: 0979 093045 Email: loniamagolo@gmail.com
3. The chairman, Biomedical Research Ethics Committee, University of Zambia, Ridgeway Campus, P.O. Box 50110, Lusaka. Telephone number: +260 -1 – 256067. Email: unzarec@zamtel.zm

APPENDIX III**ASSENT FORM****STUDY TITLE: MENTAL HEALTH PROBLEMS EXPERIENCED BY HIV POSITIVE ADOLESCENTS; A CASE OF CHOMA DISTRICT, ZAMBIA**

Please tick all the boxes provided, and sign/ thumb print below on behalf of your daughter/ son/ niece/ nephew/ grandchild

I confirm that I have read/ had the study explained to me and understand the information contained in the information sheet and understand what is expected of my daughter/ son/ niece/ nephew/ grandchild	
I understand that her participation is voluntary and that she/ he is free to withdraw from the study at any time without giving a reason	
I understand that her/ his involvement in this study and anything she/ he will say during the interview will remain confidential	
I also understand that while her/ his responses are normally confidential, the information will be revealed to medical/ health care professionals if she/ he is considered to be at risk of harm	
I confirm that I have been given the opportunity to ask questions about the study on her/ his behalf and answers have been given to my satisfaction	
I agree for her/ him to participate in the study and also agree that any written record of her/ his contributions will be anonymized	
I decline for her/ him to participate in the study and decline to give consent	

Signature / Right thumb print of respondent

Signature of researcher

THE UNIVERSITY OF ZAMBIA

SCHOOL OF NURSING SCIENCES

SELF ADMINISTERED QUESTIONNAIRE

TOPIC: A STUDY TO DETERMINE MENTAL HEALTH PROBLEMS EXPERIENCED BY HIV POSITIVE ADOLESCENTS; A CASE OF CHOMA DISTRICT, ZAMBIA

DATE:

INSTRUCTIONS FOR THE RESPONDENTS

1. Your participation in this study is voluntary
2. **Do not** write your name anywhere on this questionnaire
3. Answer **all** the questions in this questionnaire.
4. For questions provided with alternatives, **tick** your answers in the boxes provided.
5. Be **honest** when answering these questions
6. Be assured that all information provided will be treated strictly **confidential** and only be used for the purpose it is intended for.

SECTION A: DEMOGRAPHIC DATA

1. How old are you?
 - a. 11 - 13 { }
 - b. 14 - 17 { }
2. What is your gender?
 - a. Male { }
 - b. Female { }
3. What is your religious denomination?
 - a. Roman Catholic { }
 - b. Pentecost { }
 - c. Seventh Day Adventist { }
 - d. Jehovah's witness { }
 - e. United Church of Zambia { }
 - f. Others; Specify _____
4. What is your highest level of education completed?
 - a. Nursery { }
 - b. Primary { }
 - c. Secondary { }
 - d. Tertiary { }
 - e. Never been to school
5. Who do you live with
6. What is the occupation of your next of kin

SECTION B: STRENGTHS AND DIFFICULTIES QUESTIONNAIRE

		Not true (0)	Somewhat true (1)	Certainly true (2)
7.	I try to be nice to other people. I care about their feelings			
8.	I am restless, I cannot stay still for long			
9.	I get a lot of headaches, stomach-aches or sickness			
10	I usually share with others (food, games, pens etc.)			
11	I get very angry and often lose my temper			
12	I am usually on my own. I generally play alone or keep to myself			
13	I usually do as I am told			
14	I worry a lot			
15	I am helpful if someone is hurt, upset or feeling ill			
16	I am constantly fidgeting or squirming			
17	I have one good friend or more			
18	I fight a lot. I can make other people do what I want.			
19	I am often unhappy, down hearted or tearful			
20	Other people my age generally like me			
21	I am easily distracted, I find it difficult to concentrate			

22	I am nervous in new situations. I easily lose confidence			
23	I am kind to younger children			
24	I am often accused of lying or cheating			
25	Other children or young people pick on me or bully me			
26	I often volunteer to help others (parents, teachers, children)			
27	I think before I do things			
28	I take things that are not mine from home, school or elsewhere			
29	I get on better with adults than with people my own age			
30	I have many fears, I am easily scared			
31	I finish the work I am doing. My attention is good			

SECTION C: INTERNALISED STIGMA

		Not true (0)	Somewhat true (1)	Certainly true (2)
32.	In many areas of my life, no one knows I have HIV			
33.	I feel guilty because I have HIV			
34.	People's attitudes make me feel worse about myself			
35.	Telling someone I have HIV is risky			
36.	I feel I'm not as good as others because I have HIV			
37.	Having HIV in my body is disgusting to me			
38.	I work hard to keep my HIV a secret			

39.	People seem afraid of me because I have HIV			
40.	I worry about people discriminating against me			
41.	I worry people who know I have HIV will tell others			
42.	Having HIV makes me feel I'm a bad person			

SECTION D: MENTAL HEALTH SERVICES

		Not true (0)	Somewhat true (1)	Certainly true (2)
43.	Mental health services are available at Choma General Hospital			
44.	I have access to mental health services			
45.	I have received professional counselling for my problem			
46.	Nurses usually counsel me each time I go for reviews			
47.	Am happy with the psychological support I receive			

THE END!! THANK YOU FOR YOUR PARTICIPATION

APPENDIX V: SDQ PARENT VERSION**SN:**

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behaviour over the last six months.

		Not true (0)	Somewhat true (1)	Certainly true (2)
1.	Considerate of other people's feelings			
2.	Restless, overactive, cannot stay still for long			
3.	Often complains of headaches, stomach-aches or sickness			
4.	Shares readily with other children (treats, toys, pencils etc.)			
5.	Often has temper tantrums or hot tempers			
6.	Rather solitary, tends to play alone			
7.	Generally obedient, usually does what adults request			
8.	Many worries, often seems worried			
9.	Helpful if someone is hurt, upset or feeling ill			
10.	Constantly fidgeting or squirming			
11.	Has at least one good friend			
12.	Often fights with other children or bullies them			
13.	Often unhappy, down-hearted or tearful			

14	Generally liked by other children			
15	Easily distracted, concentration wanders			
16	Nervous or clingy in new situations, easily loses confidence			
17	Kind to younger children			
18	Often lies or cheats			
19	Picked on or bullied by other children			
20	Often volunteers to help others (parents, teachers, other children)			
21	Thinks things out before acting			
22	Steals from home, school or elsewhere			
23	Gets on better with adults than with other children			
24	Many fears, easily scared			
25	Sees tasks through to the end, good attention span			

THE END!! THANK YOU FOR YOUR PARTICIPATION

APPENDIX VI: THE STRENGTHS AND DIFFICULTIES

QUESTIONNAIRE YOUTH VERSION (SDQ- Y) DESCRIPTION

The SDQ is a brief behavioural questionnaire administered to parents/caregivers of 4-to-17- year olds and to 11-to- 17-year olds. Besides covering common areas of emotional and behavioural problems, it also enquires whether the respondent thinks that the child has a problem in these areas and so, asks about the distress and social impairment. It comprises 25 items (some positive others negative), with answers being rated on a 3-point scale (0 = ‘not true, 1 = ‘somewhat true’, 2 = ‘certainly true’. The SDQ provides the total difficulties score (TDS) as well as five (5) individual subscale scores of emotional problems, conduct problems, hyperactivity/inattention problems, peer relationship problems and pro-social behaviour. With the exception of the pro-social subscale, the sum of the other subscales generates the TDS (range 0-40). In addition, the SDQ provides useful information which can give a rough probability of diagnosis The SDQ scores for the present study will be classified as normal (clinically significant problems are unlikely), borderline (reflects clinically significant problems) and abnormal (substantial risk of clinically significant problems) as categorised by Goodman, (2000). The classifications are as follows;

- (i) Emotional Symptoms score: Normal 0-3, Borderline 4, Abnormal 5-10
- (ii) Conduct Problems score: Normal 0-2, Borderline 3, Abnormal 4-10
- (iii) Peer Relations score: Normal 0-2, Borderline 3, Abnormal 4-10
- (iv) Hyperactivity score: Normal 0-5, Borderline 6, Abnormal 7-10
- (v) Pro-social Behaviour score: Normal 6-10, Borderline 5, Abnormal 0-4.
- (vi) Total Difficulties Score: Normal 0-15, Borderline 16-19, Abnormal 20-40

APPENDIX VII: INTERVIEW GUIDE FOR NURSES

1. What services/programmes does your institution have?
2. What are the common mental health problems seen in adolescents with HIV in your facility?
3. How are the adolescents assessed in this facility?
4. What specific treatments/interventions does the institution offer to children with mental health problems?
5. Are the staff trained to do the job they do? If Yes, specify the nature and minimum qualifications of your staff /caregivers
6. What kind of support and ongoing mentoring do you receive from management?
7. Is there a referral system in place to compensate for services that you do not offer? Yes/No
8. If yes to question 8, outline some of your collaborating partners

