The Psychology of Human Immunodeficiency Virus: A systematic review of the affect that Human Immunodeficiency Virus /Acquired Immunodeficiency Syndrome has on the mental health of children and adolescents.

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Abstract

Background: Child and adolescent mental health (CAMH) is frequently neglected, although it is estimated that one in every five of them has a mental condition. Viruses like HIV is an example of a potential warning sign that can lead to a child or adolescent developing mental health problems. **Method:** This paper is a systematic review and narrative synthesis of quantitative studies conducted on HIV/AIDS and mental health in children and adolescents within the last decade (2012-2022). Databases such as Google Scholar, Ebscohost, Springer, Sabinet, GALE Cengage, APA PsycNet, and SAGE Research techniques were searched and a total of 16 empirical studies that examined the affect that a positive HIV diagnosis has on the mental health of youth were considered. Study components were recorded in the form of a matrix table which included: year of publication, authors, title of article, aims of the study, sample, socio-ecological level of influence, key findings as well as identified interventions. Conceptual content analysis was then applied as a method of studying and retrieving meaningful information such as the frequency of key mental health themes and mental health conditions pertaining to CAMH, that emerged in the primary literature, which was summarised in the matrix table. **Results:** A total of 90 articles were retrieved via an online desktop search and through rigorous screening based on predetermined inclusion and exclusion criteria, only 16 articles deemed eligible for inclusion and further analysis. **Conclusion:** An HIV positive (HIV+) diagnosis can influence CAMH on an individual-level, family-level, community-level and structural-level. In addition, CAMH can be affected by the cognitive, emotional, and/or behavioural viewpoint. Furthermore, several interventions that were identified on the various levels displayed on the socio-ecological model deem beneficial in enhancing the mental health of HIV+ children and adolescents.

***Key words and phrases**:* HIV/AIDS, Psychology of HIV, Mental Health, Child and Adolescent Mental Health, HIV+ Children, HIV+ Adolescents

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Abbreviations

ADHD	Attention Deficit/Hyperactivity Disorder
ADHD-I	Attention Deficit/Hyperactivity Disorder Inattentive Subtype
APA	American Psychiatric Association
ART	Antiretroviral Therapy
CAMH	Child and Adolescent Mental Health
CD	Conduct Disorder
CD4	Cluster of Differentiation 4
CHAMP	Collaborative HIV/AIDS Mental Health Program
DSM-5	Diagnostic and Statistical Manual of Mental Disorders fifth edition
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders fourth edition
HIV	Human Immunodeficiency Virus
HIV-	Human Immunodeficiency Virus Negative
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HIV+	Human Immunodeficiency Virus Positive
IQ	Intelligence Quotient
MOI	Mode of Infection
MST	Multi-Systemic Therapy
ODD	Oppositional Defiant Disorder
PHIV	Perinatal Acquired Human Immunodeficiency Virus
PHIV-	Perinatal Acquired Human Immunodeficiency Virus Negative
PHIV+	Perinatal acquired Human Immunodeficiency Virus Positive
PNI	Psychoneuroimmunology
PTSD	Post Traumatic Stress Disorder
SDG’s	Sustainable Developmental Goals

SUD	Substance Use Disorder
UKZN	University of KwaZulu-Natal
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

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CHAPTER ONE: INTRODUCTION

1.1 Background

Mental health can be viewed as a state of well-being in which a person is aware of their skills, including their strengths and weaknesses, and can develop the ability to find effective and healthy manners to cope with the normal stresses of life. The person is also given the opportunity to work affectively and make a meaningful contribution to the community in which they reside (World Health Organization [WHO], 2018). An individual must be in a healthy mental state in order to function at their best. As a result, it is believed that mental health is among the crucial factors that affects a person's entire health and functioning. According to the WHO (2018), mental health is more complex than simply being free of symptoms that would fit the diagnostic criteria for a mental disease. The biopsychosocial model of mental diseases, which incorporates physiological pathology, psychological components, as well as social aspects in the diagnosis of a mental health condition, allows for the holistic identification of signs that may represent a risk to a person's mental health (WHO, 2018).

According to Flisher et al. (2012), nearly one in five youth is recognized to have a mental disorder. Illnesses like the Human Immunodeficiency Virus /Acquired Immunodeficiency Syndrome (HIV/AIDS) are just a few possible indicators that could lead to a child or adolescent developing issues with their mental health. According to the data compiled by the United Nations International Children's Emergency Fund (UNICEF) in December 2018, 60% of children and adolescents who are known to be infected with the Human Immunodeficiency Virus (HIV) resided in Eastern and Southern Africa. Given the most recent data pertaining to the population of children and adolescents living with HIV, Flisher et al. (2012) emphasize the significance of addressing CAMH, as ignoring problems with mental health in this age group could increase the possibilities of them developing co-morbid psychological disorders and unhealthy coping strategies later into adulthood. In saying that, CAMH if left untreated, is considered to be detrimental to public health.

1.2 Problem statement

Younger people's mental health appears to be a less-emphasized worldwide health concern. Given the high incidence of HIV infection among youth, this age group is particularly vulnerable to mental health problems, including cognitive deficits, depression, anxiety, suicide ideation, post-traumatic stress disorder (PTSD), substance use disorder (SUD) as well as cognitive impairments to name a few. Greater knowledge of mental health in relation to viruses

like HIV is essential because early detection could reduce the likelihood that psychological stress will negatively affect the immune system, as understood by psychoneuroimmunology (PNI). Additionally, evaluations and early interventions may prevent mental health issues resulting in more co-morbid disorders emerging at a later stage in the infected individual's life. The goal of the systematic review is to determine how an HIV+ diagnosis affects CAMH. Additionally, the systematic review seeks to contribute to the advancement of knowledge in terms of the implemented 2030 agenda for the United Nations Sustainable Developmental Goals (SDGs) which is based on the principle of unity and empowerment (United Nations, n.d). In particular, this systematic review may contribute valuable knowledge to goal 3 of 17 which seeks to ensure and promote good health and well-being for individuals of all ages.

1.3 Structure of the dissertation

The dissertation contains a total of seven chapters. The first chapter introduced the research study and the problem statement which signifies the need for the present study. The second chapter of the dissertation includes the literature review of which the topic of HIV/AIDS will be addressed as well as the modes of infection (MOI), the prevalence of HIV/AIDS in children and adolescents, the affect that HIV/AIDS has on mental health, with a particular reference to CAMH. The literature review will also address methods of interventions that can be beneficial in enhancing CAMH in HIV+ youth. In addition, chapter two includes the theoretical framework for the study, in this case, Urie Bronfenbrenner socio-ecological model. Chapter three entails the rationale of the present study, the achievable aims and objectives as well as the critical questions that the researcher intends to answer by undertaking the study. The fourth chapter of the dissertation addresses the methodology of the present research study which includes aspects relating to the research paradigm and design as well as the sampling and data collection techniques, the PRISMA flow diagram, and the analysis procedures. The findings of the systematic review located in the fifth chapter includes the matrix table and focuses on the content analysis of the articles that has been retrieved, screened and deemed eligible for the present study. The sixth chapter of the dissertation entails the discussion of the findings in relation to answering the critical research questions that were outlined in chapter three. Last but not least, the seventh chapter of the dissertation entails the conclusion, the present research's limitations that emerged in the findings as well as recommendations for future research in the field of HIV/AIDS and mental health. Subsequent to the final chapter of the dissertation would be the references as well as the appendices which include (a) the turnitin similarity report, and (b) the ethical approval letter for the present research study.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

According to research data, HIV/AIDS and other terminal illnesses are among the most common and rapidly progressing diseases in the world (The Global Aids Epidemic, 2022). As a result, as researchers work to better understand the pathogen, the disease progression and transmission, the consequences pertaining to physical and mental health deterioration, as well as culture friendly holistic treatment measures, the knowledge about HIV and its progression into AIDS, as well as its consequences is growing.

In this chapter, the importance of addressing mental health will be uncovered and the HIV pathogen together with its evolution through disease progression will be discussed. In addition, the MOI or disease transmission, as well as diagnosis and treatment of HIV will also be explored. The prevalence of HIV in children and adolescents as well as its impact on mental health with a particular reference to CAMH will be identified and explored. This would signify the importance of implementing early medical and psychological interventions. In saying that, several identified interventions that can be used to enhance CAMH will be highlighted. Last but not least, the theoretical framework component of the chapter makes reference to Urie Bronfenbrenner's socio-ecological model that can be used to emphasize the link between social ecology and health and will be discussed in order to grasp an understanding of the experiences and social situations of HIV+ individuals.

2.2 The importance of addressing mental health

Addressing mental health across all age categories is vital as mental health issues that are left untreated may not just emerge into co-morbid mental health issues as described by Flisher et al. (2012) but could also lead to medication non-adherence as well as possible disease progression as understood through PNI. PNI also referred to as psychoendoneuroimmunology or psychoneuroendocrinoimmunology describes the relationship between mental health and disease progression, with the focus on how the well-being or mental state of an individual can affect their health and immunity to disease (Ader & Cohen, 1993).

In light of the understanding of PNI, it is not uncommon for negative psychological emotions to cause inflammation in the immune system which could lead to an illness becoming more severe. In addition, the weakening of the immune system caused by psychological distress could also lead to the immune system becoming resistant to the required treatment (Kiecolt-Glaser et al., 2002).

Psychosocial consequences such as stressful live events, anxiety, depression, coping skills, the cognitive mind-set of the individual as well as the availability, and access to social support are considered to being a few of the many psychological factors that could result in HIV disease progression and a decline in the cluster of differentiation 4 (CD4) cells (Balbin et al., 1999).

In terms of psychology and the progression of HIV, Balbin et al. (1999) highlight that the immunity measures relevant to HIV that are largely affected by negative mental health states are the helper and cytotoxic T cells, T cell activity, NK cell activity, and herpes virus antibody titres (Balbin et al.,1999). Furthermore, Balbin et al. (1999) suggest that several negative coping strategies which include but are not limited to denial as well as negative attributions have been linked to a swift CD4 cell decline. On the contrary, coping skills and strategies such as distraction and finding meaning have been linked to a much slower CD4 cell decline. In addition, Balbin et al. (1999) found that a healthier social support together with prompt disclosure of an individual's HIV status as well as the commencement of treatment have been linked to a slower CD4 cell decline.

From a PNI perspective, it is vital to view terminal illness holistically by taking into account the factors pertaining to mental health and disease progression. By doing so, not only should the physical symptoms of the presenting problem be identified and treated, but also considerations should be made regarding the precipitating, perpetuating, and protective factors of mental health in understanding disease progression and the subsequent, adverse effects on the infected individual.

2.3 Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome

2.3.1 What is HIV/AIDS?

In 1981, a pathogen known as the HIV became apparent in the United States of America when the Centre for Disease Control and Prevention came across a rare form of pneumonia as well as a particular type of cancer that was rather uncommon (Van Dyk, 2017). The disease was later found in Central Africa accompanied by additional symptoms such as diarrhoea and severe weight loss. 1982 saw the renaming of the virus as it was now known as AIDS. The term acquired suggest that the acquisition of AIDS could not be genetically inherited but rather contracted from exposure to the leading pathogen. In other words, individuals contract HIV which invades the immune system and progresses over time into the development of AIDS. During the year 1983, South Africa saw the first case of HIV/AIDS individuals that had a confirmed positive diagnosis (Van Dyk, 2017).

HIV is considered to be a pathogen that infects and attacks the body's white blood cells known as CD4 cells (WHO, 2021). CD4 cells are accompanied by similar T cells and take responsibility in the body's response to fighting infection. By attacking and reducing the amount of these specialized white blood cells found in the blood that are responsible to fight off intruding and harmful pathogens, the body's immunity weakens. This results in the infected individual becoming prone to contracting and developing secondary, more opportunistic, infections and terminal illnesses such as severe bacterial infections, tuberculosis as well as certain types of cancers. HIV can be grouped under two distinct subtypes, namely, HIV-1 and HIV-2. It is known that a large portion of HIV+ infections worldwide is caused by the HIV-1 subtype as it is deemed to be more infectious in comparison to the HIV-2 subtype (Gilbert et al., 2003).

2.3.2 HIV/AIDS mode of infection

HIV/AIDS can be passed on from individual to individual through behavioural infections, also known as horizontal transmission, such as sexual transmission. The virus can also be contracted by coming into contact with HIV infected blood through the sharing and unsafe disposing of needles as well as through mother to child transmission (Van Dyk, 2017).

According to Cohen and Galvin (2004) and Van Dyk (2017), in terms of sexual transmission and gender, it is considered that females are most likely to become infected by the virus. A reason in support of this conclusion is thought to be through unprotected vaginal intercourse. This consideration is supported by the suggestion that when a female receives semen from males, the semen remains in their body for a lengthier time in comparison to when a male comes into contact with the fluids from a female.

Van Dyk (2017) argues that the younger generation are more prone to contracting HIV in comparison to the older generation. This is due to the younger generation being in their prime reproductive years, and may engage in several unsafe behavioural practices which could increase their vulnerability. Unsafe behavioural practices include engaging in sexual acts at a younger age, being influenced by drugs or alcohol which may lead to unsafe behavioural outcomes as well as having unprotected sexual relations with older individuals who may or may not know their HIV status. She goes on by making reference to the reality that the younger generations are also increasingly exposed to forceful and harmful acts such as sexual exploitation and abuse.

HIV can spread through infected blood that may not involve sexual practices (Van Dyk, 2017). With that being said, this particular type of transmission can spread through the use of sharing needles to inject drugs or substances directly into the bloodstream. Furthermore, Van Dyk (2017) suggest that several individuals who do have a drug addiction may turn to unsafe practices, such as sex work and prostitution, that provide them with funds which can become readily available and easily accessible to support their substance addiction.

According to Van Dyk (2017) mother to child transmission, also referred to as vertical transmission or perinatal acquired HIV (PHIV), is regarded as being a prominent leading cause of neonates and children being infected with HIV. She argues that this can be due to the mother conceiving after being raped by an HIV+ individual or having a partner that engages in unsafe sexual practices outside of the relationship. She goes on by indicating that pregnancy can cause the unborn child to be infected with the virus if the mother has a high viral load in her bloodstream. However, Van Dyk (2017) states that in most instances, mother to child transmission occurs through the birthing process as the new-born comes into direct contact with the mother's blood and fluids.

If, in certain instances, the mother does contract HIV after the birth of her child, there is a possibility that the infant can still become infected with the HIV pathogen by vertical transmission through lengthier periods of frequent breastfeeding. In saying that, it is not uncommon for HIV infected cells to be found at different concentrations in the breastmilk of a mother (Abrams et al., 2006).

2.3.3 HIV/AIDS diagnosis and treatment

HIV testing and counselling by a registered practitioner is one of the most crucial methods to become aware of your HIV status, the acquiring of knowledge pertaining to the progression of the pathogen into AIDS, and the commencement of treatment. Although the disease itself is considered to be incurable, by engaging in treatment during the early stages of the diagnosis when the CD4 cell count is high and the viral load is low can promote a longer life expectancy and a better quality of life. In addition, the HIV+ individual may become less prone to developing secondary and more opportunistic infections due to a stronger and rather healthier immune system.

In terms of screening for the HIV pathogen, Van Dyk (2017) highlighted that the first step is to identify the pathogen in the blood while the second step is to consider how efficiently the immune system detects and responds to the invasion. The pathogen can be identified by

searching for the p24 viral antigen or the viral nucleic acid through the administration of antibody tests, rapid antibody tests as well as the HIV virus test (Van Dyk, 2017). To conclude how efficiently the body's immune system responds to the invasion of the virus, the HIV consultant or healthcare provider will take a measure of the individuals CD4 cell count.

Van Dyk (2017) further suggest that the confirmation of an HIV+ diagnosis will ultimately lead to counselling as it is of paramount importance for the individual to be aware of their status, the possible progression of the virus, the risk it may pose on the lives of sexual partners and families as well as various other factors that could be exacerbated such as the development of mental health conditions.

She further mentions that once the HIV+ individual's CD4 cell count and viral load has been established, screening should be done to ensure underlying conditions have not yet developed. Antiretroviral therapy (ART) should then commence. ART is considered to be a useful and an effective method of treatment to reduce the progression into AIDS and to increase life expectancy as well as to contain emerging secondary infections (Johnson, 2012).

It should be noted that ART comes in several forms such as reverse transcriptase inhibitors, protease inhibitors, integrase inhibitors, and entry inhibitors (Van Dyk, 2017). In support of the types of ART available for treatment, Van Dyk (2017) suggest that the primary goals of ART are to decrease the viral load of HIV and the progression into AIDS. ART will also provide support to the immune system so that opportunistic diseases do not arise which may increase life expectancy and promote a better quality of life for the infected individual.

2.3.4 Prevalence of HIV/AIDS in youth

Data suggest that a possible of 1.3 million pregnant women were living with HIV in 2019 and there were approximately 82,000 HIV+ children younger than the age of 5 years who were likely infected with the virus during the pregnancy or the birthing process (UNICEF, 2020). In addition, it was estimated that approximately 68,000 babies were known to be infected during the breastfeeding stages (UNICEF, 2020).

Asaolu et al. (2016) points out that over and above relevant treatment measures as well as sexual education on preventative methods to contain the spread of HIV/AIDS, adolescents and young adult's infection rates are increasing with approximately 50% of all new infections are known to be found in individuals aged 15-24 and account for 33% of the HIV global population. Recent evidence collated in 2019 suggest that an additional 150,000 children between the 0-9-year age category had been newly infected with the HIV pathogen which

concludes a possibility of 1.1 million children within the age category that are HIV+ (UNICEF, 2020). According to UNICEF (2020), 170,000 adolescents that are bracketed within the 10-19-year age category were newly infected with the HIV pathogen in 2019 which resulted in the total amount of HIV+ children and adolescents peaking to approximately 1.7 million.

2.4 HIV/AIDS and mental health

Around the world, mental health is thought to be a growing contributor to disability (Breuer et al., 2011). In light of the fact that depression is the third-leading cause of disability globally and there is a growing likelihood that it would rank as the primary disability by the year 2050, Breuer et al. (2011) contend that depression was the most common mental health condition. Poverty, social and environmental conflict, social exclusion, and displacement, as well as fatal illnesses like HIV/AIDS, are significant risk and precipitating factors for mental health issues. Breuer and colleagues also suggest that these characteristics are disproportionately prevalent in sub-Saharan Africa; for instance, two thirds of the world's HIV+ population may be found there, as opposed to the minority 6% in nations like the United States of America and Central and Western Europe (Breuer et al., 2011).

Individuals who live with the reality of an HIV+ diagnosis are prone to experiencing a variety of issues pertaining to their mental health such as a low self-esteem and the feelings of being alienated. This can be precipitated by the social stigma that is attached to receiving an HIV+ diagnosis. Factors such as social isolation and conflicting social interactions may contribute to the increase of stress which in turn could lead to a lower level of social functioning and support seeking (Basavaraj et al., 2010).

The HIV/AIDS epidemic affects individuals across generations as children and adolescents who may or may not have an HIV+ diagnosis could find themselves becoming orphans which will lead to a gradual or sometimes unexpected change in their social environment. Changes in the family structure could then lead to lower education attainment and an increase in poverty, malnutrition, stigma, and even sexual exploitation which could serve as a precipitating factor in the development of antisocial tendencies (Matshalaga & Powell, 2002). However, Richter (2004) suggest that the psychological impact that HIV/AIDS may have on the younger generation could result in them expressing symptoms of psychological distress more internally such as in cases of depression, anxiety and withdrawal, and are least likely to express psychological distress externally through physical aggression.

2.5. HIV/AIDS and CAMH

According to UNICEF, a child can be defined as any individual below 18 years of age. In addition, WHO defines an adolescent as any individual between childhood and adulthood, specifically between the 10-19-year age category. CAMH can be understood as the optimal psychological function and well-being, and is strongly influenced by the child or adolescents' level of competency in social and/or psychological functioning (WHO, 2005). Children and adolescents who have an HIV+ diagnosis or who are AIDS orphans often find themselves having to adjust and cope with a variety of changes pertaining to their physical as well as their mental health.

Feelings that relate to the dissatisfaction of how children and adolescents view their life may originate from the psychological consequences of HIV or even the physiological consequences such as physical health deterioration that accompanies HIV disease progression (Brown et al., 2000). In terms of the psychological factors, children and adolescents find themselves experiencing issues pertaining to their mental health such as having to cope with loss and grief of family members as well as living with the anxiety and distress pertaining to their life ahead or even concerns about a known or possibly unknown HIV status (Van Dyk, 2017).

Van Dyk (2017) and Brown et al. (2000) thus far agree that feelings of loneliness, rage, depression, anger, and interpersonal problems are highly likely to arise due to the consequences of the HIV epidemic or the mere experience of confusion or numbness with having to process the possibility of contracting HIV. In addition, they all agree and conclude that in an HIV+ case, feelings of denial and acts of social withdrawal could be exacerbated by the stigma that the community may have regarding an HIV+ status.

Louw and Louw (2014) agree with the above-mentioned impact that HIV/AIDS may have on CAMH and suggest that negative psychological feelings could also be perpetuated by the circumstances of losing one or both parents to AIDS. Therefore, by becoming a child headed household, adjustments to the composition of the family structure would occur as the parent and child role adjusts as the eldest sibling takes on a more nurturing and parental role to their younger siblings. This may lead to feelings of neglect in a physical and/or emotional manner.

The abovementioned factors as well as an HIV+ diagnosis could serve as precipitating factors of several mental health conditions among the younger generation.

2.5.1 Depression

Prominent mental health conditions among HIV+ youth include depression. Depression is a typical mood disorder of which the individual will experience persistent feelings of sadness, low mood, hopelessness as well as anhedonia. Furthermore, to be diagnosed with depression, the individual must be experiencing depressive like symptoms for at least two weeks (American Psychiatric Association [APA], 2013). Breuer et al. (2011) indicate that children who are orphaned by the HIV epidemic are more likely to suffer from depression with the prevalence being 17%; compared to children who are not orphaned by HIV with the prevalence of experiencing depression being at a lower 10%.

Basavaraj et al. (2010) further suggest that mental health conditions such as depression are common amongst HIV+ individuals with the prevalence of being diagnosed with depression increasing from 22% to a possible 38%. Doku (2010) indicates that children and adolescents who are AIDS orphans often internalise their emotional symptoms in comparison to children and adolescents who are orphaned due to other means. With that being said, children and adolescents who are AIDS orphans usually present with adjustment problems such as depression compared to children and adolescents who are living with their biological parents (Doku, 2010).

Furthermore, Basavaraj et al. (2010) takes into consideration the economic consequences that an HIV+ diagnosis pose on mental health. For instance, Basavaraj and colleagues discovered that HIV+ people who are unemployed or have a low socioeconomic status are more likely to experience mental health problems including depression and anxiety, which may be made worse by social isolation and low self-esteem.

2.5.2 Anxiety

An HIV+ diagnosis can predispose a child or adolescent to emotional disorders such as anxiety, which is described as “excessive worry and apprehensive expectations” that last for more days than not, and for at least six months according to the fifth edition of the diagnostic and statistical manual of mental health conditions (DSM 5) (APA, 2013). According to research, children and adolescents who have HIV+ parents are more likely to experience emotional mental health issues including anxiety in comparison to children and adolescents who are orphans due to other means (Doku, 2010). In saying that, Doku (2010) suggest that orphanhood and parental HIV serve as indicators that result in children and adolescents internalising their problems and emotions. This is supported by research which indicates that children and adolescents who are

AIDS orphans usually display higher scores on adjustment problems, such as anxiety, in comparison to children and adolescents who are living with their biological parents (Doku, 2010).

2.5.3 Suicide Ideation

According to the APA (2013), suicide ideation can be understood as thoughts pertaining to self-harm with a deliberate intention or plan to cause one's own death. It is not uncommon for individuals with an HIV+ diagnosis to develop suicide ideation or become para-suicidal, however cases of suicide ideation are increasingly prevalent in individuals who have major depression or frequent acts of substance use. (Basavaraj et al., 2010). Basavaraj and colleagues further indicate that the crucial period of which an HIV+ individual is most likely to engage in suicidal attempts is within the first six months after diagnosis, and when the physical symptoms of AIDS begin to appear.

2.5.4 Post Traumatic Stress Disorder

According to the APA (2013), post-traumatic stress disorder can be understood as a mental disorder that develops and lasts over a month of which the individual has prolonged psychological distress caused by exposure to a stimulus that could either be internal or external which symbolises an aspect of a previously experienced traumatic event. Breuer et al. (2011) indicate that there is an increased prevalence of developing PTSD with data suggesting that 73% of children orphaned by AIDS meeting the diagnostic criteria of this mental health condition.

Cluver et al. (2009) indicate that higher rates of PTSD in South African children are common amongst those who are living in communities that are poverty stricken and are exposed to higher levels of violence. Furthermore, it is evident that children who are orphaned due to HIV infection are at a higher risk of developing PTSD (Cluver et al., 2009). A protective factor that could prevent children and adolescents from developing PTSD is social support. It is clear that social support could lessen the negative consequences of PTSD exposure from a socio-ecological perspective (Cluver et al., 2009). That being said, research shows that compared to children and adolescents who felt their social support was insufficient, those who felt their social support was adequate to high had considerably reduced levels of PTSD symptoms (Cluver et al., 2009).

2.5.5 Stigma

It should be noted that stigmatization caused by becoming orphans due to the HIV epidemic is considered to be a prime precipitating factor in terms of the younger generation experiencing depression (Breuer et al., 2011). Furthermore, the mere exposure to health deterioration and the anticipated death of family members may serve to bring about negative consequences to CAMH who are not yet orphaned, but may very well be encountering the route to becoming orphans (Louw & Louw, 2014). In saying that, changes in the family structure, which include role changes, could also result in the child or adolescent neglecting school which may hinder their education and could lead to more opportunities of stigmatization. This could also serve as a gateway to poverty due to the inability to find employment and earn an income to accommodate basic human needs (Louw & Louw, 2014).

2.5.6 Conduct Disorders

Richter (2004) refers to the long-term psychological consequences that can be due to emotional deprivation caused by changes in support or family structure as well as the fear of being infected with HIV. She refers to the reality that a lack of emotional care and support could lead to the younger generation growing up with a lack of empathy and more prone to antisocial behaviours, and possible conduct disorders (CD). According to the DSM-5, CD can be defined as habitual actions that include the violations of the rights of other individuals. Furthermore, the definition implies that individuals with CD do not conform their behaviour or actions to the law or social norms that are appropriate for their age (APA, 2013). It is evident that children and adolescents who either lost their parents to HIV or who are affected by the HIV pathogen display higher instances of conduct problems (Doku, 2010). In contrast to children who were orphaned due to AIDS or other means and non-orphaned children whose parents are HIV+ or have a negative diagnosis (HIV-), research has shown that orphaned children have substantial behaviour issues (Doku, 2010). In saying that, Doku (2010) indicated that psychopathic behaviours that are evident in children and adolescents are possibly due to them being raised without supervision, parental care, nondisclosure as well as the uncertainty of the psychosocial effects of orphanhood (Doku, 2010).

2.5.7 Attention Deficit/Hyperactivity Disorder

It was found that children and adolescent who are HIV+ are also prone to attention deficit/ hyperactivity disorder (ADHD) as outlined by Mpango et al. (2017). ADHD, as mentioned in the DSM-5, is categorised by a persistent pattern of inattentive and/or hyperactive behaviour that causes impairments, and interferences with an individual's functioning and development

(APA, 2013). Research indicates that children and adolescents who have an HIV+ diagnosis may also display symptoms of ADHD and usually present with the predominantly inattentive subtype (ADHD-I) (Mpango et al., 2017).

2.5.8 Substance Use Disorder

SUD can be defined as a disorder that involves a problematic pattern of substance use or ingestion that could cause a clinically significant impairment in the individual (APA, 2013). It was evident in previous research that risk factors pertaining to CAMH are mostly associated with sexual risk behaviours as well as substance use tendencies (Mellins et al., 2009). However, Mellins et al. (2009) point out that although SUD may be an influential factor to mental health functioning among adolescents, it may not always be a highly prevalent behavioural condition in PHIV positive (PHIV+) individuals.

2.6 Interventional methods for CAMH enhancement

Interventional methods pertaining to treating mental illness are of paramount importance to the lives of the younger generation since treating issues in CAMH is crucial as emphasized by Flisher et al. (2012). In terms of sustaining CAMH, Patel et al. (2008) highlights the importance of protective factors that aim to promote positive psychological well-being and sustainment of CAMH which can be located on the various socio-ecological levels.

2.6.1 Individual-level

Nassen et al. (2014) focused on the management or interventional techniques that could be used for various mental health disorders as well as central nervous system issues experienced in children and adolescents who have an HIV+ diagnosis. Interventions outlined by Nassen et al. (2014) that deem beneficial in enhancing CAMH on an individual-level include psychotherapeutic interventions such as counselling with a particular reference to cognitive behavioural therapy (CBT), interpersonal therapy (IPT), and psychotherapy from the psychodynamic perspective.

2.6.2 Individual/family-level

From an individual and family-level perspective, Patel et al. (2008) indicate the importance of individual and family support as well as relationships within the family. In saying that, multi-systemic therapy (MST) can be considered and applied in the holistic treatment approach of HIV.

2.6.3 Community-level

Interventions that may serve to being beneficial in promoting CAMH on the community-level include community strengthening interventions, education and counselling pertaining to underlying issues such as unsafe sexual behaviour, as well as the consequences of an exposure to sexual and/or physical violence (Patel et al., 2008). By psycho-educating the schools, community, and society at large through addressing the reality and prevalence of HIV and the importance of seeking the relevant care; stigma may be reduced which could willingly lead the infected or affected child or adolescent to seek appropriate treatment and support.

2.6.4 Structural-level

Initiatives that are considered to be beneficial in CAMH sustainability on the community and/or structural-level is the development of and easy access to affordable mental health resources. In addition, healthcare workers and clinics should adopt a holistic treatment approach of which not only the physiological consequences of an illness are attended to, but the mental health consequences as well (Patel et al., 2008).

By strengthening the systems from an ecological point of view, disclosing and accepting the reality of physical and terminal illnesses may reduce the feelings of isolation and lack of support. By providing the necessary education and support, it could be expected to cause a fluent transition as health deterioration and social change unfolds in the life of the HIV+ child and adolescent.

2.7 Theoretical Framework

2.7.1 The Socio-Ecological Model

The socio-ecological model proposed by Mburu et al. (2014) emphasizes the link between social ecology and health and was utilised in an attempt to grasp an understanding of the experiences and social situations of HIV+ adolescents. The model was initially introduced by Russian American psychologist, Urie Bronfenbrenner, in 1970 and was conceptualized into a theory almost a decade later (Kilanowski, 2017).

The socio-ecological model highlights the interrelatedness between the intrapersonal, interpersonal, community as well as society at large in providing a holistic framework for describing human interactions (Baral et al., 2013). With the holistic suitability of the socio ecological model, the model was used as a theoretical framework and roadmap for exploring HIV/AIDS and mental health with a focus on identifying the affect that a positive HIV/AIDS diagnosis has on CAMH. It should be noted that although the socio-ecological framework was

not developed primarily for addressing mental health and terminal illnesses, the model was utilised to shed light on how HIV/AIDS affects CAMH from a holistic, and socio-ecological point of view.

By acknowledging and blending the socio-ecological framework into addressing the affect that HIV has on CAMH, the researcher would be able to identify how HIV can cause disruptions in an individual's system of being such as changes in their beliefs, attitudes, and health as well as changes in their family composition, education dropout, and the stigma that is attached to HIV by society. These contributing factors could therefore result in the individual experiencing negative mental health symptoms and unhealthy coping strategies such as being reluctant to partake in relevant treatment measures due to the fear of shame and embarrassment.

The usefulness of adopting the socio-ecological approach in an attempt to unravel the affect that an HIV+ diagnosis may have on CAMH, is that the socio-ecological model aims to shed light on individual, family as well as social and community determinants which speaks to the dynamic complexity of the consequences HIV/AIDS (Lounsbury & Mitchell, 2009).

Lounsbury and Mitchell (2009) suggest that individuals are active agents in their lives. In saying that, individuals are in a continuous process of shaping their environment and allowing their environment to shape them. The usefulness of the socio-ecological model state that change is inevitable and is part of the process of being, and with that supports the idea that as the needs of the individual change or as the important role models or figures in an individual's life changes, so do the setting of which the individual find themselves (Lounsbury & Mitchell, 2009).

Lounsbury and Mitchell (2009) refer to four logical assumptions that are beneficial when relating the socio-ecological model to the study of health behaviour. Firstly, a specific health problem does not have a single contributing factor. This assumption can be related to the ways in which HIV can affect CAMH as mental health issues may not arise from an intrapersonal or interpersonal level, but may arise based on how the community and society label HIV+ individuals.

This speaks to the second assumption that Lounsbury and Mitchell (2009) refer to which suggest that issues are more likely to be affected from a variety of factors that may come from multiple levels of influence. In relation to the affect that HIV has on CAMH, mental health may be affected by the individuals own perceptions and beliefs, or it may be precipitated by a lack of social support or changes to the family structure due to the consequences of HIV. HIV

can also cause changes on a community level such as unemployment status which leads to possible poverty and even an increase in the stigma that is attached to been orphaned by HIV/AIDS or living with an HIV+ diagnosis could serve as a perpetuating factor to ongoing mental health issues.

The third assumption which implies that smaller changes in the contributing factors may ultimately develop into large influences on health. By identifying the affect that an HIV+ diagnosis has on CAMH, any additional preventative or treatment measures that will be beneficial in sustaining the mental health of the future leading generation may become clear.

Last but not least, the fourth assumption that Lounsbury and Mitchell (2009) consider as a supporting factor regarding the socio-ecological model in the study of health behaviour is that there is a combination of both socio-environmental as well as biological influences that lead individuals to behave in a certain manner. This assumption supports the constructivist paradigm as individuals need to be considered in the environment in which they find themselves in, as a result, the individuals will not only react to biological changes such as physical illnesses but also to how the social environment views people or illnesses of such nature. Furthermore, changes and exclusion in the social environment such as alienation and isolation are also considered to be precipitating factors in children and adolescents developing mental health issues.

The diagram outlined by Mburu et al. (2014) provides the readers with a visual description of the various levels within the model, and the interrelatedness of each level. The model can be used to identify how HIV causes disruptions in an individual's system of being, and can be useful in addressing the affect that an HIV+ diagnosis has on CAMH.

Figure 1

Socio-Ecological Factors that Influence the Mental Health of HIV+ Children and Adolescents.

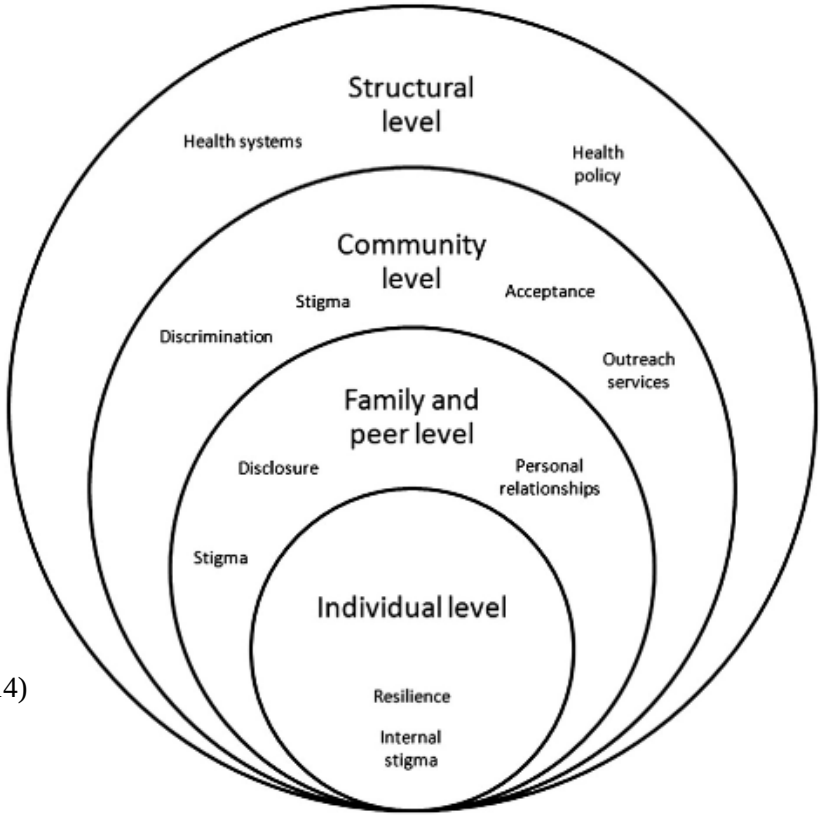


Image source: Mburu et al. (2014)

2.6 Conclusion

The chapter addressed the importance of addressing mental health in light of PNI, as well as introduced the HIV/AIDS epidemic by accounting for the disease itself, the MOI, and the diagnostic and treatment measures. The chapter proceeded to highlight the widespread prevalence of HIV/AIDS among the youth worldwide by being exposed to the pathogen either through horizontal or vertical transmission. The chapter further discussed the affect that HIV/AIDS has on mental health with an emphasis on CAMH. To conclude, the final sub-section of the literature review addressed interventions, on the various socio-ecological levels, that can be useful in terms of enhancing CAMH which may lead to a better adherence to medical treatment and a favourable life expectancy. Subsequent to the literature review, the socio-ecological model proposed by Mburu et al. (2014) was used to emphasize the link between social ecology and health, and was used in an attempt to grasp an understanding of the experiences and social situations of an HIV+ diagnosis on CAMH.

CHAPTER THREE: RATIONALE, AIMS, OBJECTIVES, AND RESEARCH QUESTIONS

3.1 Introduction

The negative effects of the virus on mental health are still a growing public health concern despite the extensive research done on the HIV/AIDS epidemic. Given the high rates of juvenile infection, it is critical to recognize the findings of recent studies on how an HIV+ diagnosis affects CAMH. After stating the foregoing, the chapter continues by discussing the justification for the present research study, followed by the aims and objectives that need to be achieved. The chapter concludes by outlining the predetermined critical research questions that will be answered in an attempt to address the aims and objectives.

3.2 Rationale of the study

Academic databases contain a variety of scientific research that has been conducted globally on the HIV epidemic and the consequences thereof. According to WHO (2020), the African region is considered to be the leading region on a global scale with approximately 25.4 million individuals living with an HIV+ diagnosis which includes an estimation of 880,000 newly infected individuals by the end of 2020. Singh et al. (2006) points out that the transmission of HIV infection is rapidly increasing amongst female adolescents, and is supported by recent evidence which suggest that in 2019, approximately 130,000 female adolescents were infected with HIV in comparison to 44,000 males in the same age category (UNICEF, 2020).

This systematic review seeks to identify recent online and published literature pertaining to HIV/AIDS and CAMH. By doing so, this systematic review would be able to identify the effect that HIV has on CAMH as well as unpack on the possible interventions thereof. By examining current online research conducted in the field of mental health and HIV between 2012 and 2022, and with the given recent statistics pertaining to the population of HIV+ children and adolescents, Flisher et al. (2012) signify the importance of addressing mental health in children and adolescents as overlooked issues pertaining to mental health in this particular age category can increase the chances of developing co-morbid psychological disorders and unhealthy coping strategies later into adulthood. In addition, the researcher would be able to identify gaps in recent literature that could provide a gateway for future research.

3.3 Aims of the study

The rationale outlined above together with the problem statement, and the present research study's contribution to the advancement of knowledge in terms of the United Nations SDG's

outlined in chapter 1; the aim of the systematic review is to retrieve and analyse recent quantitative research articles conducted between 2012 and 2022 on HIV/AIDS and mental health. Although minimal risk exposure to HIV could also result in an HIV- diagnosis; the focus of the systematic review narrows towards the influence and effect that a known HIV+ diagnosis has on CAMH, and to identify current interventions that could serve as beneficial in enhancing the quality of life and CAMH.

3.4 Objectives of the study

1. To identify and examine the influence and effect that a positive HIV/AIDS diagnosis has on the mental health of children and adolescents
2. To identify interventional methods that are currently available and used to enhance the mental health of HIV infected children and adolescents

3.5 Research questions

The following critical research questioning pertaining to the study have been formulated in order to achieve the above outlined objectives of the study:

1. How does HIV/AIDS influence the mental health of children and adolescents?
2. What effect does a positive HIV/AIDS diagnosis have on children and adolescent's mental health?
3. What interventional methods are currently available and used to enhance the mental health of HIV infected children and adolescents?

3.6 Conclusion

Given the high prevalence of HIV+ youth, and by taking into consideration the consequences of disease progression, it is almost inevitable that a child and/or adolescent may experience issues pertaining to their mental health. By addressing how HIV/AIDS influences CAMH from a socio-ecological viewpoint, and by identifying the effect that a positive HIV/AIDS diagnosis has on CAMH, the researcher seeks to add to the advancement of knowledge in the field of HIV and psychology. In addition, by identifying and acknowledging informed interventions that could enhance the mental health in HIV+ children and adolescents, the implementation of such interventions could lead to a better quality of life for the abovementioned vulnerable population.

CHAPTER FOUR: METHODOLOGY

4.1 Introduction

Research methodology refers to the rationale behind utilizing various approaches or methods that are beneficial in identifying and gathering appropriate research data (Kothari, 2004). In addition, the methods adopted in the research process are essential to the study being conducted as it serves as a guide in terms of answering the outlined research questions as well as provides the research process with structure and shape (Kothari, 2004). The first section of this chapter examines the appropriate research paradigm as well as the research design that grounded the research process. The chapter then explores the sampling and recruitment strategy that is in line with the chosen research design, followed by the data collection techniques, the inclusion and exclusion criteria of the data to be included for the present research study, and the PRISMA flow diagram. The data analysis section of the chapter will address how the collected data will be analyzed and this section further outlines how the data will be managed and synthesized for reporting purposes. The limitations of the chosen study design will be acknowledged and issues concerning the credibility, dependability, transferability, and confirmability of the research design will be addressed. The chapter will conclude by outlining the ethical issues that are deemed applicable to the chosen research process.

4.2 Research Design and Methodology

4.2.1 Research Paradigm

A research paradigm can be understood as philosophies of science that assist and guide the researcher by providing guidelines in terms of ontology such as the way reality is perceived, epistemology, which focuses on the conception of the nature of knowledge, axiology which includes ethical obligations that constitute good research and last but not least, the methodology which focuses on the process of conducting research and obtaining data (Park et al., 2020).

The paradigm that was best suited for the topic under research was the constructivist paradigm, which is qualitative in nature. The constructivist approach is a style of scientific inquiry that is predicated on the premise that humans develop knowledge through experience (Adom et al., 2016). With that being said, knowledge is gained through experimentation and doing.

Reality within the constructivist paradigm is socially constructed; as a result, multiple mental constructions and perceptions of reality may differ among the study findings (Mertens, 2019). In terms of epistemology, the concept of confirmability is a prominent aspect in the constructivism paradigm (Mertens, 2019). The author highlighted the assumption that data and

interpretations are rooted in contexts, and people are not products of imagination. The data collected can also be traced to their original source and the logic used that enabled the researcher to construct interpretations of the data can be made explicit in the narrative (Mertens, 2019).

4.2.2 Research Design

In line with the constructivist paradigm, methods such as the use of interviews, document reviews as well as observations are an important element of qualitative research (Mertens, 2019). The present study used a systematic review with the aim of providing insight as to how an HIV+ diagnosis affects CAMH.

In relation to the academic context, a systematic review is considered to be a type of review that seeks to provide a holistic, comprehensive, and unbiased report of all pertinent knowledge regarding a particular topic or objective with the primary focus on retrieving research articles that report on data rather than merely repeating the findings from previous articles (Aromataris & Pearson, 2014).

In light of the expanding availability and accessibility of evidence-based scientific information and published scholarly articles that can be found on the internet and various other electronic academic platforms, systematic reviews are becoming a beneficial and useful form of methodology in terms of synthesizing secondary academic material that is relevant to a particular topic. According to Montori et al. (2003), and in relation to the outlined objectives for the present academic paper, a systematic review was used to answer the distinct critical research questions in relation to the affect that an HIV+ diagnosis has on CAMH. Montori and his colleagues proceeded to suggest that in order to obtain the relevant objectives of the study, and to provide insightful knowledge and opportunities for future research, a comprehensive search through all relevant online literature pertaining to the topic will need to be conducted, keeping in mind the predetermined inclusion and exclusion criteria.

There are various advantages of conducting a systematic review which have been outlined by Munn et al. (2018). Firstly, the findings obtained in a systematic review are considered to be more meaningful as well as reliable since a systematic review utilizes several relevant academic articles that have been retrieved using specific systematic procedures and rigorous methods that are related to the topic. These findings are beneficial in terms of research into healthcare and mental health as in this case, it will be used to examine the affect that the HIV epidemic has on mental health with a particular focus on CAMH, as well as unpack on current

interventional methods that are used to enhance CAMH. The findings obtained through a systematic review can also be beneficial in providing a gateway for future research in order to address the gaps that have been identified (Munn et al., 2018).

In addition to the above-mentioned benefits of conducting a systematic review, Munn et al. (2018) indicated that the findings may also provide statements that could be beneficial to clinical decision making such as the level of care that is delivered, and could serve to be an insightful contribution to the development of new and updated policies relevant to the particular field of interest.

Furthermore, Pineault et al. (2006) suggested that a review of relevant literature that can be obtained using online platforms are considered beneficial as the academic research is not time bound which allowed the researcher to retrieve articles both locally and internationally over a prolonged time period. Pineault and colleagues further pointed out that systematic reviews on health care research mitigates the need for intense ethical clearance as there are no primary research being conducted on human or animal participants. This increases beneficence in terms of analysing research while reducing the risk of maleficence on a vulnerable population such HIV+ children and adolescents.

4.2.3 Sampling and Recruitment

The systematic review addressed the recent evidence concerning the affect that an HIV+ diagnosis has on CAMH. In saying that, quantitative desktop articles published from the year 2012 until present (2022) was considered. The age range of the participants that have been studied in the relevant data was limited to the ages 6 – 19 years as this is due to the systematic review focusing on children and adolescents. Furthermore, this particular category is of school going age and is more prone to understanding, and directly experiencing the influences and consequences of exposure within the levels in the socio-ecological model.

The scope of the online articles that had been considered extended further than the South African context, as possible online retrieving limitations could impose that local documented research on the subject could be limited given the stipulated backtracking time frame. The secondary data search retrieved a total of 90 articles and included local and international online research articles published in the English manuscript that had been obtained from search engines such as Google Scholar. Additionally, papers from databases such as Ebscohost, Springer, Sabinet, GALE Cengage, APA PsycNet, and SAGE Research techniques were accessed through the University of KwaZulu-Natal (UKZN) online library.

4.2.4 Data collection techniques

Due to the increasing and expanding availability, and accessibility of scientific information and published scholarly articles that can be found on the internet and various other electronic academic platforms, the possibility of information overload may threaten the data collection process in terms of articles to include and exclude in order to obtain the objectives of the systematic review.

Instead of an exhaustive method being used to incorporate and include all the sources that become available, the academic search was guided by the search key words and phrases that related to the objectives and research questions that have been outlined on page 19 The researcher then assessed the evidence base and a process of elimination was conducted in accordance to the predetermined inclusion and exclusion criteria in order to select only the articles that are relevant to the research questions (Booth et al., 2016). All articles that had been considered throughout the data collection process for the purpose of the academic research paper were screened for eligibility and displayed using a visual diagram. In this case, the visual representation of the articles was influenced by the four phase PRISMA 2009 flow diagram (Moher et al., 2009).

The following three phases guided the researcher in obtaining the relevant secondary data for analysis.

Phase 1: An in-depth search with the following key words and phrases “children and adolescent’s mental health vulnerabilities”, “child mental health”, “adolescent mental health”, “HIV positive children and adolescents”, “mental health in HIV positive children and adolescents”, “psychological health of children and adolescents”, “consequences of HIV in children and adolescents” “interventions for child and adolescent mental health” had been conducted.

Phase 2: Articles relevant to the above mention search terms were then obtained for analysis. The evidence base had been screened for eligibility by following the predetermined inclusion and exclusion criteria.

Phase 3: Articles that were relevant to the study and met the inclusion criteria were analysed, and all relevant data had been captured on the matrix table to provide an overview of the research findings in relation to how HIV affects CAMH.

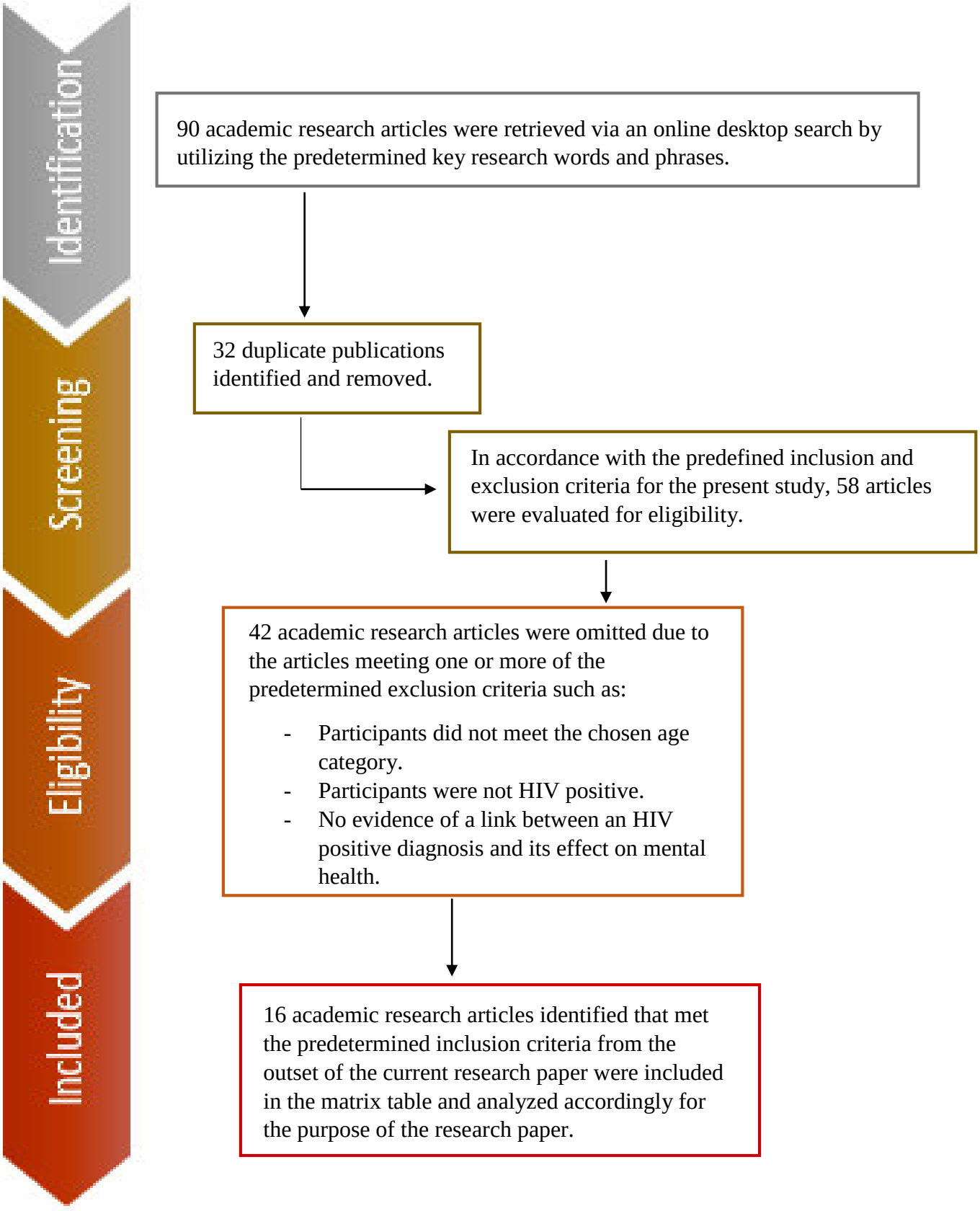
4.2.5 The inclusion and exclusion criteria

The inclusion criteria for the systematic review included (a) academic online articles that were (b) published between 2012 and present (2022), and (c) included HIV+ male and/or female children and adolescents between the 6-19-year age category. All articles that were considered in the systematic review were (d) quantitative in nature, (e) available in full text, and (f) published in the English language. In addition, the systematic review aimed to identify interventional methods that are currently available and used to enhance CAMH, as a result, (g) articles that make reference to interventional methods regarding mental health in relation to HIV had also been included.

The articles that had been excluded in terms of analysis for the systematic review were (a) articles that were qualitative in nature, and (b) have not been published or are non-academic related. Since the systematic review was only including online articles, (c) all hard copy books were excluded. In addition, (d) articles that provided only the abstract or required purchase in order to obtain the full academic article were not considered for analysis. Furthermore (e) any article published before 2012 and published in a language other than the English language had also been excluded for review. Since the systematic review focused on how HIV/AIDS affects CAMH, (f) any article pertaining to various other medical conditions or any other age group, such as before the age of six or after the age of 19, had been excluded. Last but not least, (g) articles that made reference to interventional methods regarding mental health in relation to other medical illnesses had not been considered for review.

Figure 2

PRISMA Flow Diagram



4.2.6 Data Analysis

The data obtained for analysis by means of secondary data collection methods had been accomplished by following the above-mentioned phases as well as taking into consideration the predetermined inclusion and exclusion criteria. All articles that were eligible for the aim and objectives of the study had been analysed and displayed in a matrix table in chapter five. According to Garrard (2011), the matrix table is considered to be a structured process of systematically reviewing academic literature. The matrix table summarized and included valuable information such as the year of publication, the author of the study, the title, the aims of the study, details pertaining to the sample, the identified socio-ecological level of influence, as well as the key findings, and interventions identified in the study. By providing an overview of the secondary data obtained through the use of the matrix table, the researcher aimed to provide the readers with a cohesive and comprehensive overview of the recent evidence pertaining to the topic.

Furthermore, conceptual content analysis of the inclusive articles was conducted by extracting insights as well as formulating the findings of each distinct article into categories (Hsieh & Shannon, 2005). Conceptual content analysis is a data analysis method that can be applied to quantitative or qualitative data in an attempt to identify frequencies within the data. With that being said, this method of analysis was applied as a method of studying and retrieving meaningful information from the included articles that were displayed and summarised in the matrix table. In addition, conceptual content analysis was conducted to determine the frequency of key mental health themes and conditions that emerged in the primary literature, and to develop an analysis in a manner that was cohesive.

4.2.7 Data Management

All articles that were eligible for inclusion in the present study had been summarised, analysed, and all relevant information had been extracted and tabulated in the matrix table. The matrix table was structured in a way that was thought appropriate in order to present the pertinent data relative to each article in a thorough and coherent manner. A total of n=90 articles were retrieved of which n=58 were screened for eligibility as displayed in figure 2. A total of n=42 articles were excluded from the data collection sample as the articles met one or more of the predetermined exclusion criteria. Only n=16 articles deemed eligible for inclusion and had been outlined in the matrix table located in table 1 of chapter five.

4.2.8 Linking the analysis to the research questions

In order to summarize the data that had been extracted and provided in the matrix table in regard to addressing the research questions, a narrative synthesis of the data had been carried out in chapter six of the systematic review.

A narrative synthesis is considered to be a method adopted in systematic reviews with the aim of synthesizing the findings obtained from multiple research studies essentially by means of a textual format that is not statistical in nature (Popay et al., 2006).

The use of a narrative synthesis assisted the researcher in synthesizing the unique characteristics and findings of each article that appeared through the use of content analysis; and by synthesizing the findings of the studies in relation to the critical research questions, the researcher was able to present the findings presented in chapter four in a rather cohesive and comprehensive manner. Furthermore, through a narrative synthesis of the findings, the researcher was able to detect any underlying features of the findings obtained that could serve as a gateway for future research and investigations.

4.3 Limitations of the study design

A systematic review can be viewed as a valuable method in terms of defining the methods and findings of subsequent studies, however a systematic review can also be subjected to biasness that can be induced in any step of the analysis and could mislead the researcher to incorrect conclusions (Yuan & Hunt, 2009).

Quality evaluation is a crucial component in regard to establishing valid and clinically relevant effect estimates in a systematic review. The quality assessment, according to Yuan and Hunt (2009), should be modified in order to incorporate important methodological criteria that are pertinent to the validity and interpretation, or in line with the type of study. Yuan and Hunt (2009) also made reference to the inappropriate managing of the collected data as this could lead to incorrect conclusions in a systematic review as missing data could potentially introduce biasedness.

In addition, Yuan and Hunt (2009) indicate that the publication bias might also have an impact on the validity of the systematic review and revealed that articles that are not statistically significant or have a reduced sample size are least likely to be published. Furthermore, Yuan and Hunt (2009) indicated that the likelihood of an article being published can be influenced by the magnitude of the results/ findings in the article. With that, the findings in a systematic review are based on articles that were available at the time of data collection and therefore may

not always be able to present the findings as the whole truth. Given that a systematic review is narrowed down with the aim of addressing a particular question/s that are relevant to the study being conducted, Yuan and Hunt (2009) acknowledged that an additional limitation of the study design is that systematic reviews usually present one side of the evidence, and at times cannot answer all pertinent questions pertaining to the topic.

4.4 Credibility, dependability, transferability, and confirmability

4.4.1 Credibility

In a qualitative synthesis of research such as a systematic review, credibility makes reference to the extent in which the synthesis of the findings represents the obtained data that are located in the primary studies (Tong et al., 2016). In order to ensure credibility of the systematic review, the researcher together with the supervising researcher practiced investigator triangulation in which briefing and supervision sessions enhanced the analytical process by providing guidance and ideas to refine interpretations (Tong et al., 2016). In saying that, researcher reflexivity was discussed in the limitations of a systematic review of which possible biasness and preconceptions were acknowledged (Tong et al., 2016). Furthermore, to ensure credibility of the research, the researcher ensured that the articles that had been collected for analysis have been screened according to the predetermined and specified inclusion and exclusion criteria. It should be noted the importance of the article being published in the English language, as this minimized the risk of language barriers or ambiguities that could have led to an inaccurate analysis of the articles. Articles that were published in the English language also ensured that the articles do refer to the affect that an HIV+ diagnosis has on CAMH.

4.4.2 Dependability

As acknowledged by Tong et al. (2016), the interpretation process of data is an inherent characteristic in which another researcher may be unable to produce the exact same findings. However, dependability may also refer to the transparency and auditability of the research process (Tong et al., 2016). To ensure the possible reproduction of the findings in a systematic review, explicit search strategies pertaining to the inclusion and exclusion criteria, search terms and phrases as well as the search engines were provided. This increased the dependability of the systematic review should the review be considered to a similar population at a later stage. Furthermore, to ensure the dependability of the systematic review, the researcher promoted quality capturing of the data for analysis with the use of the matrix table.

4.4.3 Transferability

As defined by Tong et al. (2016), transferability is the applicability of the findings to other individuals, populations, and contexts. Transferability can be strengthened by means of providing descriptions and narrowly defining the population. In the case of the research under consideration, the population had been narrowed down to HIV+ children and adolescents who are between the 6-19-year age category. Furthermore, a thick description of the information pertaining to the theoretical framework, the data collection, analysis, and the management process were acknowledged and discussed. By doing so, the readers would be able to identify if the findings of the systematic review can be applied to a different population (Tong et al., 2016).

4.4.4 Confirmability

The confirmability aspect of a systematic review seeks to identify if the established findings are based on the primary data and are not misconstrued by the researcher (Tong et al., 2016). The key findings of the articles included in the systematic review were presented in the matrix table and the articles were further subjected to content analysis as each article was numbered based on its inclusion in the matrix table, key mental health themes were identified, and links were made between the theme findings and the primary data source.

4.5 Ethical issues related to the research process

Due to the academic research being a systematic review, there was no need for primary data collection on human or animal participants, however, ethical approval of the current research study was required from the UKZN Humanities and Social Science Research Ethics Committee. The ethical approval letter can be located in appendix c of the academic research paper.

There are various ethical considerations that need to be accounted for when collecting articles for secondary data analysis. Tripathy (2013) indicated that if the articles are provided on various academic internet platforms or have been published in e-books that are available for download or hardcopies that can be purchased at one's own free will, permission to utilize such information is implied. On the contrary, if the articles require permission to view the full text or obtain the required data, written permission would need to be obtained from the primary research team (Tripathy, 2013).

Tripathy (2013) then proceeded to suggest that the articles obtained and the data that had been extracted need to be relevant and sufficient but not excessive. To ensure that all data was

relevant and sufficient, and to avoid the overpopulation of articles, the systematic review collected and screened each article for eligibility by taking into consideration the various inclusion and exclusion criteria. Triphathy (2013) further mentioned that an important ethical factor to consider when conducting secondary data analysis is that the researcher conducting the systematic review needs to ensure that the original primary data collected in the article for analysis was not collected to answer the present research questions. Hence, this ensured that the systematic review gathered articles and analysed data that will be beneficial in providing new information as well as opportunities for further research, and not merely repeating the findings of various other studies (Triphathy, 2013).

4.6 Conclusion

The process of collecting data by utilising the above mentioned method ensured that the researcher was able to conduct research into the topic in a rather non-maleficent manner as opposed to conducting primary research on an already vulnerable population. The chapter highlighted the key methodologies that were utilised for the research study, such as aligning the systematic review within the constructivist paradigm. The chapter further outlined the various phases and procedures that were applicable in capturing and analysing the secondary data such as the sampling and recruitment of secondary data, the data collection techniques as well as the data analysis. The main aim of the research was to gather and analyse recent evidence that can be beneficial in providing insight as to how an HIV+ diagnosis affects CAMH. The use of a narrative synthesis in terms of linking the findings to the research questions was discussed. Furthermore, the limitations pertaining to a systematic review as well as issues surrounding credibility, dependability, transferability, and confirmability in the context of a systematic review was addressed. Last but not least, the ethical issues that were related to the research process was acknowledged.

CHAPTER FIVE: FINDINGS

5.1 Introduction

As the data collection was obtained by means of a desktop search, the focus of this chapter is on the findings that were generated through the content analysis of the included articles obtained. A vast amount of quantitative studies in the form of electronic journal articles, outlined in table 1, document the affect that an HIV+ diagnosis has on CAMH. All electronic publications included participants who had an HIV+ diagnosis and attempted to focus on how an HIV+ diagnosis affects CAMH. Furthermore, the eligible outlined articles in table 1 form the foundation in terms of the findings for the present systematic review. The findings generated take the form of mental health themes and mental health conditions that emerged in the data.

A description of the articles acquired during the data gathering procedure is given at the beginning of the chapter. The chapter proceeds to provide an overview of the inclusive articles in the matrix table by highlighting key elements such as the year of publication, author/s, title of the article, sample size, the socio-ecological level that may influence CAMH, key findings as per the article as well as identified or proposed intervention techniques. Furthermore, a content analysis of the inclusive articles displayed in the matrix table was conducted by extracting insights as well as formulating the results of the primary source into categories (Hsieh & Shannon, 2005).

5.2 Search results

The data collection process for the present systematic review began in July 2022. The collection of the data involved a 3 stage process of which 90 articles were retrieved using the following search terms: “children and adolescent’s mental health vulnerabilities”, “child mental health”, “adolescent mental health”, “HIV positive children and adolescents”, “mental health in HIV positive children and adolescents”, “psychological health of children and adolescents”, “consequences of HIV in children and adolescents” “interventions for child and adolescent mental health”. As displayed in figure 3, upon the identification and removal of duplicates, the articles that were eligible for screening was reduced to 64% (n=58). The remaining n=58 articles were screened for eligibility for inclusion based on the predetermined inclusion and exclusion criteria. Approximately 72% (n=42) of the eligible articles were excluded due to the articles meeting one or more of the predetermined exclusion criteria such as the participants not meeting the 6-19-year age category, the participants were not HIV+ or there was no evidence of a link pertaining to the affect that an HIV+ diagnosis has on CAMH. This yielded

27% (n=16) of the eligible identified articles that met the predetermined inclusion criteria. Data was extracted from the 16 articles as displayed in the matrix table in table 1 and further subjected to conceptual content analysis thereafter.

Figure 3

Quantities of the Search Results

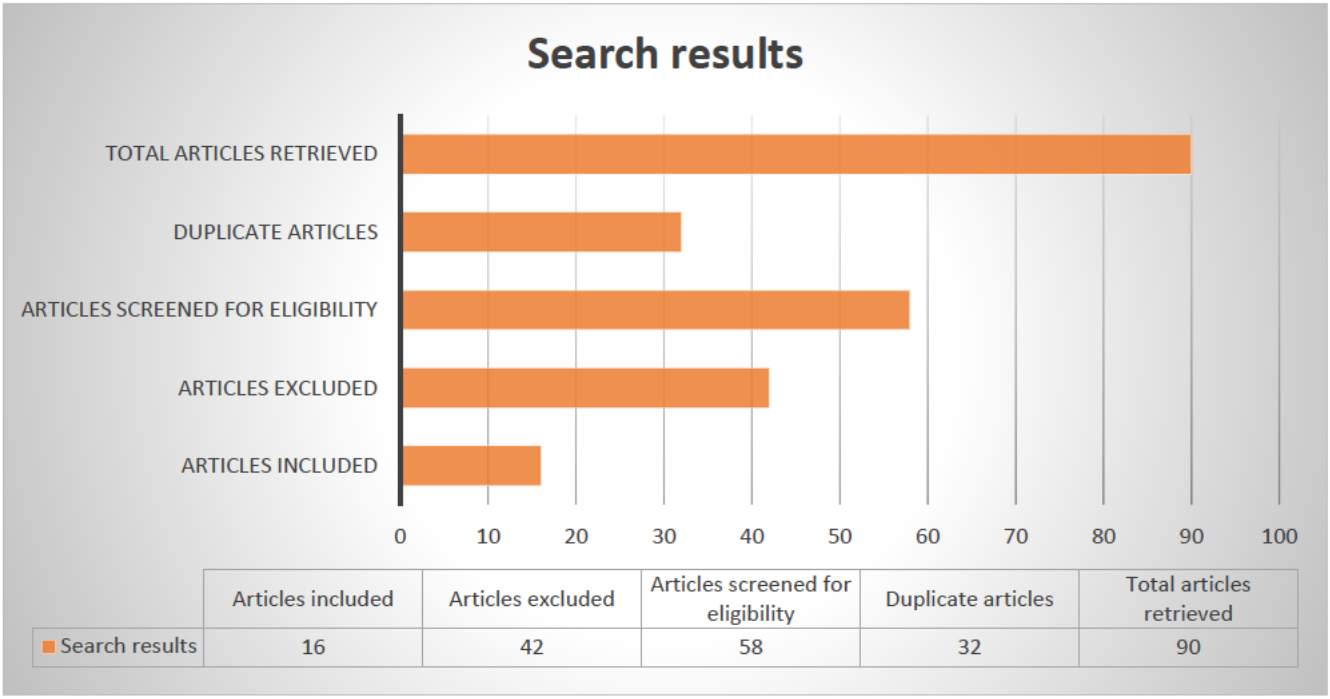


Table 1

The Matrix Table

Year and article number	**Authors**	**Title**	**Aim/s of the study**	**Sample**	**Identified level of influence**	**Key findings**	**Identified interventions**
2012 Article *1*	Kamau, J. W., Kuria, W., Mathai, M., Atwoli, L., & Kangethe, R.	Psychiatric morbidity among HIV-infected children and adolescents in a resource-poor Kenyan urban community.	The authors set out to look into the frequency and distribution of psychiatric illness among HIV+ children and adolescents in Kenya as well as any associated sociodemographic and	162 youths aged 6 to 18 who tested positive for HIV made up the sample.	Individual level and Family level - Only 30.2% of the participants knew their status. - 34% were orphaned due to AIDS. - Only 27.8% had both their parents still alive.	The results indicate that 48.8% of the participants had at least one psychiatric condition or suicidal ideation. 25.9% of the patients had several psychiatric diseases that could be diagnosed. A total of 32.2% of participants had an anxiety condition, 17.8% had major depression, and 18% were at risk for or had had attempted suicide. For both ADHD and oppositional defiant disorder (ODD), the prevalence rate was 12.2%. Among the patients who	Holistic care for HIV+ children should routinely screen for depression and suicide. In addition, interventions should incorporate caregiver needs in order to facilitate improved quality of care for the HIV+ individual.

			immunological characteristics.			were diagnosed with ADHD, 84% had ADHD-I.	
2012 Article *2*	Nachman, S., Chernoff, M., Williams, P., Hodge, J., Heston, J., & Gadow, K. D.	Human immuno-deficiency virus disease severity, psychiatric symptoms, and functional outcomes in perinatally infected youth.	The authors sought to assess the relationships between psychiatric and functional outcomes in young people with PHIV infection and the severity of HIV.	319 HIV+ youth between the ages of 6 and 17 made up the sample. Males made up 51% of the sample.	Individual level - The article looked at CD4 count in relation to psychiatric disorders. Family level - Parents may have HIV as youth were infected through vertical transmission (PHIV).	The results show that one-third of participants met the Diagnostic and Statistical Manual, Fourth Edition (DSM-IV) symptom cut-off criteria for at least one specified psychiatric condition. 54% of the children among the 37 primary caregivers who fulfilled DSM-IV symptom criteria for at least one psychiatric illness did so for at least one of the seven target disorders, as opposed to 31% whose carers did not satisfy symptom criteria. A lower CD4 count was linked to more severe CD symptoms but less severe depressive symptoms. Higher entrance RNA virus loads were linked to both less severe ADHD-	No identified intervention strategies were reported in the article.

						I symptoms and more severe depressive symptoms. Children with ADHD allegedly also performed poorly in school and had weaker social and academic functioning, as well as lower health ratings and coding scores.	
2012 Article *3*	Gadow, K. D., Angelidou, K., Chernoff, M., Williams, P. L., Heston, J., Hodge, J., & Nachman, S.	Longitudinal study of emerging mental health concerns in youth perinatally infected with HIV and peer comparisons.	The authors sought to compare newly appearing psychiatric symptoms in PHIV+ groups with those in comparison who were negative (PHIV-) and had had at least one follow-up visit over a two-year	525 participants from the age range of 6 to 17 made up the sample (PHIV = 296 and peer comparison = 229).	Individual level - Lower CD4% may lead to higher rates of depression. Family level - No parental support. - Many children are not living with their biological parents were at	Results from the second-year follow-up visit show that 70% of peer comparison and 69% of teenagers with PHIV met the DSM-IV symptom cut-off criteria for at least one targeted mental disorder. Participants who got psychiatric medication or whose symptoms were apparently interfering with social or academic performance made up 43% of PHIV participants and 37% of peer comparisons participants. At study entry, 36%	The authors suggest that behavioural or pharmacological interventions may be beneficial in terms of reducing the affect that PHIV may have on mental health in youth.

			period. The authors also sought to determine rates of medication for developing symptoms in these 2 groups of young people as well as predictors of emerging symptoms.		a greater risk of developing ADHD symptoms.	of PHIV participants and 42% of participants in peer comparisons were asymptomatic, but at the follow-up visit, they satisfied the symptom cut-off criteria for at least 1 targeted disorder. Psychiatric disorders in older children and adults can operate as risk factors for the development of ODD or CD symptoms. ADHD symptoms may be more likely to develop in children who do not live with their biological parent or parents. The researchers discovered that young people with lower CD4% at study entry had a higher chance of developing depression than those with higher CD4%.	
2012	Mellins, C. A., Elkington, K. S.,	Prevalence and change in	The authors looked at	The sample consisted of	Individual level	The results show that males were more likely to appear with	The authors indicated that a

Article *4*	Leu, C. S., Santamaria, E. K., Dolezal, C., Wiznia, A., Bamji, M., Mckay, M. M., & Abrams, E. J.	psychiatric disorders among perinatally HIV-infected and HIV-exposed youth.	potential effects of PHIV infection as well as shifts in the prevalence and type of mental illnesses and SUD throughout two time points.	325 people who completed the entire baseline interview (196 PHIV+ and 129 PHIV). 280 participants (166 PHIV+ and 114 PHIV-) completed the 18-month follow-up interview. All participants fell within the age range of 9 to 16 years.	- Looks at resilience among PHIV+ and PHIV- participants. Family level - Participants were PHIV+ or exposed Structural level - PHIV+ participants received comprehensive treatment.	behavioural problems than females, who were more likely to present with anxiety disorders. The older participants had a higher prevalence of mood and behavioural problems, while the younger ones had a higher prevalence of anxiety disorders. At either time point, 68.7% of participants who were PHIV+ and 69.3% of people who were PHIV- met the requirements for any psychological condition. At the initial visit, 60.2% of PHIV+ participants and 57.0% of PHIV- participants had any psychiatric disorders present, and at the follow-up, 44% of PHIV+ participants and 53.5% of PHIV- participants did. At the initial visit, 22% of patients with any	majority of PHIV+ participants were involved in a collaborative HIV/AIDS mental health program (CHAMP) throughout their lifetime and attended clinics regularly of which they engaged with several healthcare providers. PHIV+ participants were more likely to receive mental health services at follow-up visits.

						type of psychiatric disorder met the criteria for two or more disorders, and 14% did so at the follow-up. At the initial encounter, PHIV+ participants were three times as likely to report a mood disorder and twice as likely to report ADHD. SUD prevalence was minimal in both time points among PHIV+ and PHIV-participants.	
2012 Article *5*	Smith, R., Chernoff, M., Williams, P. L., Malee, K. M., Sirois, P. A., Kammerer, B., Wilkins, M., Nichols, S., Mellins, C., Usitalo, A.,	Impact of human immunodeficiency virus severity on cognitive and adaptive functioning during	The authors sought to compare the cognitive and coping abilities of a group of youth who were PHIV- versus	There were 558 people in the sample as a whole. There were 200 PHIV- adolescents, 270 PHIV+ adolescents without an aids	Individual level - Some participants had an AIDS defining illness. Family level	The results show that for all three groups, the overall mean scores on tests of cognitive and adaptive functioning were in the low average range. The mean full scale intelligence quotient (IQ) scores for PHIV+ participants with an aids-defining disease were substantially lower than for PHIV+ participants without an	The article did not highlight a distinct intervention to promote the mental health in HIV+ youth, however, the authors did mention that early preventative therapy may be

	Garvie, P., & Rutstein, R.	childhood and adolescence.	those who were PHIV+.	defining illness, and 88 participants who were PHIV+ youth with an aids defining illness (such encephalopathy). The participants ranged in age from 7 to 16 years old.	- Participants were vertically infected.	aids-defining illness and PHIV- participants after controlling for variables. Lower cognitive function was predominantly associated with a history of encephalopathy in PHIV+ patients with an aids-defining disease. All three groups' findings fell within the average range for adaptive functioning.	beneficial in reducing the risks of future or later neurodevelopmental impairments in youth who are HIV+.
2013 Article *6*	Mellins, C. A., & Malee, K. M.	Understanding the mental health of youth living with perinatal HIV infection: lessons learned	The authors' goal was to analyse existing research on the functioning of PHIV adolescents'	There was no primary study done, however the systematic review contained 38 papers with	Individual level - Prone to stigma. - Developmental stages already pose the challenge of	Results point to the likelihood of emotional and behavioural issues in youth who are PHIV+. On average, prevalence data from studies show high rates of depression, anxiety disorders, and	The authors suggest that the CHAMP can be useful to a variety of cultures. Parent–child involvement and communication

		and current challenges.	mental health system, associated risk and protective variables, treatment options, and the urgent need for additional interventions and study.	subjects who were HIV+ and at least 10 years old.	adapting to change. Family level - PHIV acquired infection. - Families may abuse substances. Community level - Limited resources. - Exposed to violence. - Neighbourhood disintegration.	ADHD (25%, 24% and 29% respectively).	as well as peer, parent and teacher social support can enable better function in HIV+ youth. The authors also suggest MST to promote the mental health of HIV+ youth.
2014 Article *7*	Kim, M. H., Mazenga, A. C., Devandra, A., Ahmed, S.,	Prevalence of depression and validation of the Beck	By conducting a cross-sectional study, the authors hoped to	562 adolescents between the ages of 12 and	Individual level - Adolescents are in a	The results show that mean Beck Depression Inventory-II scores for females were considerably higher than those for males. Scores on	No identified intervention strategies were

	Kazembe, P. N., Yu, X., Nguyen, C., & Sharp, C.	Depression Inventory-II and the Children's Depression Inventory-Short amongst HIV-positive adolescents in Malawi.	determine the prevalence of depression among a sample of HIV+ youth in Malawi.	18 who tested positive for HIV made up the sample.	developmental stage. Community/Structural level - Limited local options for the diagnosis and treatment of mental health conditions.	the Children's Depression Inventory-Short were comparable between sexes. The sample population's overall prevalence of depression, as determined by the Children's Depression Rating Scale - Revised, was 18.9%, with 21.6% for females and 15.4% for males.	reported in the article.
2014 Article *8*	Betancourt, T., Scorza, P., Kanyanganzi, F., Fawzi, M. C. S., Sezibera, V., Cyamatare, F., Beardslee, W., Stulac, S., Bizimana, J.I., Stevenson, A.,	HIV and child mental health: a case-control study in Rwanda.	The authors compared mental health issues, risk factors, and protective variables in Rwandan children who were HIV+,	683 participants in the 10 to 17-year age range made up the sample. There were 218 HIV+ participants, 228 HIV	Individual level - HIV+ participants experience more stigma. Family level - Exposed to family stress and violence.	According to research, children who were HIV-affected or HIV+ had higher levels of CD, depression, and anxiety. They also showed more functional impairment. Comparing HIV-affected children to HIV-unaffected children, there was a considerably increased likelihood that these children would	The article did not highlight a distinct intervention to promote the mental health in HIV+ youth, however, the authors pointed out that while creating psychosocial programs for

	& Kayiteshonga, Y.		HIV affected, and HIV unaffected.	affected participants, and 237 HIV unaffected people.	- Greater levels of harsh punishment. - Parental mental health can affect youth mental health. Community level - HIV+ participants may have a harder time making sense of their status in the Rwanda context.	experience depression, anxiety, and CD. The results and prevalence of these mental health issues were similar to those of a child who was HIV+.	children affected by HIV/AIDS, needs for parental mental health and financial security should be taken into account.
2014 Article *9*	Bhana, A., Mellins, C. A., Petersen, I., Alicea, S.,	The VUKA family program: piloting a family-based	The authors sought to analyse a pilot randomized	65 pre-adolescents between the ages of 10 and	Individual level - Experiences of stigma.	The individuals in the VUKA group significantly outperformed those in the comparison group in all major outcomes, the authors	The authors acknowledged family social support, psycho-

	Myeza, N., Holst, H., Abrams, E., John, S., Chhagan, M., Nestadt, D.E., Leu, C.H., & McKay, M.	psychosocial intervention to promote health and mental health among HIV infected early adolescents in South Africa.	control trial known as the Vuka intervention at two specified hospitals using a community-based participatory strategy.	13 made up the sample, together with their families.	- Article looked at ART adherence. Family level - Experiences of stigma. - Non-disclosure. - Caregivers became more comfortable in talking about certain topics. Community level - Introduced the VUKA program. - Less stigma experienced by HIV+ families.	observed. These key outcomes included ART adherence, understanding of HIV treatment, and caregiver-child communication. Post-intervention, ART adherence was better for youth in the VUKA group than for those in the comparison group. In VUKA, caregivers reported a substantial improvement and reduced stigma while talking to their kids about delicate subjects such as HIV/AIDS.	educational intervention, MST for children as well as general clinical interventions. The authors further suggest that family based therapy such as the Vuka family based intervention can be a beneficial strategy in terms of enhancing the mental health of HIV+ youth. Furthermore, this particular type of intervention can be administered by trained lay staff.

2016 Article *10*	Bhana, A., Mellins, C. A., Small, L., Nestadt, D. F., Leu, C. S., Petersen, I., Machanyangwa, S., & McKay, M.	Resilience in perinatal HIV+ adolescents in South Africa.	The authors sought to investigate the environmental, societal, and self-regulatory elements that affect behavioral health in South African PHIV+ individuals.	The sample included 177 caregiver-child pairs that showed awareness of their HIV diagnoses and ranged in age from 9 to 14 years.	Individual level - Experiences of internalised stigma. - Looked at resilience and healthy coping mechanisms. - Self-esteem. Family level - Looked at communication and relationships between family members. - Better communication leads to less	Findings suggest that reduced caregiver depression, less communication about tough situations by caregivers, and stronger adolescent self-esteem are all associated with lower overall child challenges. Increased communication between caregivers and children as well as their use of wishful thinking as a coping strategy were connected to increased prosocial behaviour. Higher caregiver education, increased caregiver supervision, increased social support seeking, higher youth self-esteem, reduced internalized stigma, and child use of resignation as a coping mechanism were all associated	The authors used their assessment data and suggest that evidence based family interventions that promote self-regulation skills among the youth may be beneficial in terms of enhancing the physical and mental health of PHIV+ youth.

					stigma experienced.	with lower rates of juvenile depression.	
2016 Article *11*	Nichols, S. L., Chernoff, M. C., Malee, K. M., Sirois, P. A., Woods, S. P., Williams, P. L., Yildirim, C., Dellis, D., & Kammerer, B.	Executive functioning in children and adolescents with perinatal HIV infection and perinatal HIV exposure.	The authors compared executive performance in young people who were PHIV+ and PHIV-.	There were 258 people that participated in the sample in total. There were 173 PHIV+ participants, of whom 45 had an AIDS-defining condition. There were 85 PHIV- participants. Participants ranged in age	Individual level - Examined executive functioning. - Suggestive that being immunocompromised may lead to impairments in executive functioning.	Results indicate that PHIV+ youth underperformed on some executive functioning tests. Findings show that PHIV+ participants with an AIDS-defining illness performed considerably worse on the inhibition and color-word interference subtests. The subtests for fluency and problem-solving revealed no significant differences.	No identified intervention strategies were reported in the article.

				from 9 to 19 years.			
2017 Article *12*	Woollett, N., Cluver, L., Bandeira, M., & Brahmbhatt, H.	Identifying risks for mental health problems in HIV positive adolescents accessing HIV treatment in Johannesburg.	The study's goal was to examine the mental health of adolescents who are HIV+ and receiving treatment in Johannesburg, with a particular emphasis on looking at depression, anxiety, PTSD, and suicidality in young people who are PHIV+.	343 adolescents between the ages of 13 and 19 who tested positive for HIV made up the sample.	Individual level - Experiences of stigma. - Vertical transmission. - Lack of security. Family level - Vertical transmission. - Violence at home and lack of family structure. - Peer victimisation	Results indicate that 27% of the subjects had PTSD, anxiety, or depression. The results showed suicidality or suicidal thoughts in 24%. Due to a prevalence rate between 18% and 81%, the authors determined that major depression is the most prevalent mental health problem among HIV+ people. The findings show that children left orphaned by HIV/AIDS had a 67% higher risk of developing PTSD. Since 78% of the population in the sample knew they had HIV, the authors further stress the significance of disclosure. 50% of the sampled	The authors suggest that intervention strategies need to acknowledge that adolescents are in transition into adulthood. With that, intervention strategies need to be dynamic and flexible in nature and should also be useful in terms of identifying and addressing emerging threats and opportunities.

					outside of school. Community level - Violence in the community. - Victimisation and non-acceptance. - Urban poverty. - Higher levels of migrancy.	population knew what their MOI was.	
2018 Article *13*	Ashaba, S., Cooper-Vince, C., Maling, S., Rukundo, G. Z., Akena, D., & Tsai, A. C.	Internalized HIV stigma, bullying, major depressive disorder, and high-risk suicidality among HIV-positive	The study's objective was to conduct a cross-sectional analysis to identify the connections among internalized	224 adolescents between the ages of 13 and 17 who are HIV+ made up the sample.	Individual level - Experiences of internalised stigma. Community level - Victimisation. - Stigma.	16% of the participants had major depression, 13% of the participants reported suicidal thoughts, and 9% were considered to be at high risk for suicide. In addition, 41% of the participants displayed high levels of internalized stigma, and 43% of the participants reported	The authors highlight and suggest the need to incorporate psychological interventions in HIV treatment. School based intervention

		adolescents in rural Uganda.	stigma, bullying, depression, and suicidality rates.		- Article looked at outreach services such as school based interventions.	experiencing bullying at least twice in the previous year.	awareness could be beneficial in reducing the stigma and promote support.
2018 Article *14*	Sherr, L., Cluver, L. D., Toska, E., & He, E.	Differing psychological vulnerabilities among behaviourally and perinatally HIV infected adolescents in South Africa– implications for targeted health service provision.	The study focused on the differences in psychological vulnerabilities between adolescents who were behaviourally infected with HIV and adolescents who were diagnosed as HIV+ as a	The sample included 1024 teenagers between the ages of 10 and 19. 792 subjects had PHIV+ status confirmed, and 232 persons had behavioural infection.	Individual level - Internalised stigma. Family level - Lack of support. - Stigma. - Reluctant to disclose HIV status. Community level - Stigma. - Poor clinic experiences.	Results indicate that adolescents who were behaviourally infected showed greater accounts of having a negative clinic experience, decreased retention in care, and reported not complying to therapy very well. Adolescents with behavioural infections also reported an increase in psychological vulnerabilities like internalized stigma, anxiety, depression, suicidal thoughts, and drug and alcohol addiction.	The authors signify that support and quality service delivery is required on an individual, community as well as on a clinic level. From the level of the clinic, intervention should be focused on reducing the harsh and reprimanding approaches to adolescents seeking ART. The

			result of vertical transmission.		Structural level - Decreased retention in HIV care.		opportunity to establish adequate to good patient-caregiver relationships should be encouraged in the clinic level.
2019 Article *15*	Boyes, M. E., Cluver, L. D., Meinck, F., Casale, M., & Newnham, E.	Mental health in South African adolescents living with HIV: correlates of internalising and externalising symptoms.	The study's objective was to uncover a variety of risk factors that may affect the mental health of adolescents who are HIV+, including those linked to parenting, interpersonal	1060 adolescents with HIV who are between the ages of 10 and 19 were included in the sample.	Individual level - Stigma. - ART side effects. Family level - Poor parental monitoring. - Poverty. - Emotional abuse/bullying. Community level	According to research, high levels of depression are correlated with things like adverse effects of ART, unpleasant clinic contacts, internalized stigma, emotional and sexual abuse, bullying victimization, and participants' ages. The presence of ART side effects, internalized stigma, anticipated stigma, emotional and sexual abuse, bullying victimization, inadequate parental supervision, and poverty were all	The authors reported that positive parenting styles, clinic support groups, social support as well as high self-efficacy can be beneficial in terms of reducing the risk factor scores and could lead to a

			relationships, health services, and HIV, as well as individual and demographic characteristics.		- Stigma. - Emotional and sexual abuse. - Negative clinic experiences.	associated with high anxiety ratings. Behavioural infection, internalized stigma, emotional abuse, bullying victimization, age, and urban location are all associated with PTSD. High conduct problem ratings are correlated with elements like internalized stigma, emotional abuse, victimization during bullying, age, and urban setting.	more positive mental health state.
2019 Article *16*	Casale, M., Boyes, M., Pantelic, M., Toska, E., & Cluver, L.	Suicidal thoughts and behaviour among South African adolescents living with HIV: Can social support buffer	The authors set out to investigate the prospective and immediate impacts of social support resources on depression and suicidal	A total of 1053 teenagers between the ages of 10 and 19 made up the sample.	Individual level - Experiences of stigma. - Low self-esteem. - Lack of resilience. Family level	According to the results, 75% of the individuals contracted HIV through vertical transmission. Instances of stigma were reported by 43.5% of the population. 46% of the subjects had at least one or more depressive symptoms. At least 8% of the individuals reported having suicidal thoughts at some point in the previous	The authors suggest social support as it was identified that there is a direct correlation between increased perceived social support and less depression. Low perceptions of

		the impact of stigma?	thoughts in young people living with HIV in South African areas with limited resources.		- Lack of a safe support structure. Community level - Exposed to more experiences of stigma.	month with 4% of the participants admitting instances of para-suicidality.	social support raise the prospect of a strong, indirect link between stigma, suicidal ideas, and behaviour and depression.

Note: Numbers assigned to articles are based on the article's listing in the matrix table. Article number allocations have been listed in column one of the matrix table, and will be used in an attempt to refer to the primary source for conceptual content analysis purposes.

5.3 Main findings

5.3.1 Participants age range

Of the reviewed articles included in the analysis; more than half of the articles (56%; n=9) included participants who were between the 10-19-year age category with only 44% (n=7) of the articles including participants below the age of 10. A possible explanation as to why more primary research studies are conducted on individuals older than 10 years of age could be due to the possibility of convenience sampling techniques, obtaining consent as well as considering the cognitive maturity of the participant who is required to participate in a research study. A further consideration is that most children do not become aware of their HIV status until their adolescent years or when physiological symptoms emerge.

5.3.2 Prevalence of HIV+ participants

In terms of the prevalence of HIV+ participants sampled in each article; at least 31% (n=5) included a combination of HIV+ and HIV- participants in their study sample. This concluded that the remaining 69% (n=11) of the articles focused their sample on HIV+ participants only with no indication of a comparison group. Only 6% (n=1) of the inclusive articles was identified as a systematic review of which an inclusion criteria were articles that included HIV+ participants. Article *15* by Boyes et al. (2019) included the largest amount of participants in their study with a total sample of n=1060 participants followed by article *14* by Sherr et al. (2018) of which a sample of n=1024 participants was considered. *Article 8* by Betancourt et al. (2014) included a total of n=683 participants comprising of HIV+ participants, HIV-affected participants as well as HIV-unaffected participants which equates to n=218, n=228 and n=237 respectively. A possible explanation as to why more primary research is conducted on HIV+ individuals only as opposed to including HIV- individuals could be due to the possibility of convenience sampling techniques. A large portion of the articles reported that researchers sampled their population from HIV clinics of which the participants have a confirmed HIV diagnosis, and is currently receiving treatment.

5.3.3 Identified socio-ecological levels of mental health influence

By being cognizant of the socio-ecological model, it is evident as to how CAMH of HIV+ participants can be influenced on various levels. The individual-level looked at factors

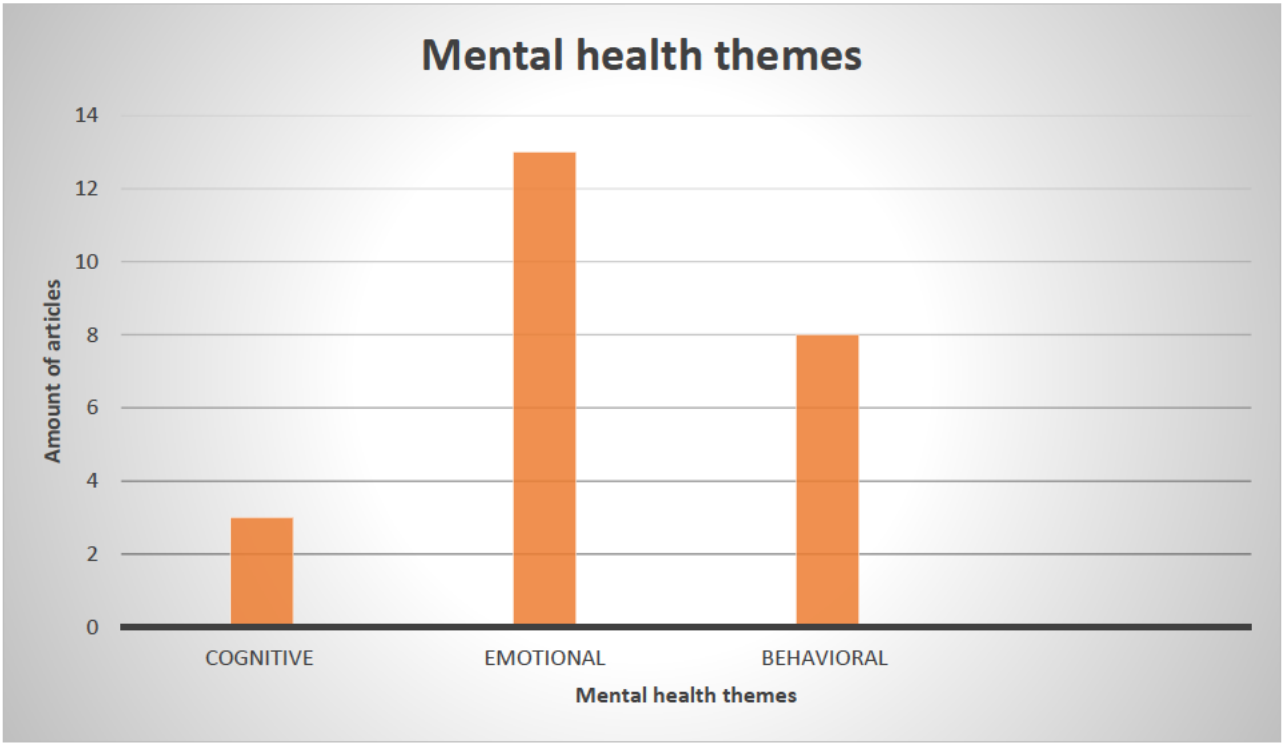
pertaining to knowledge of an HIV status, stigma, resilience, ART adherence, CD4%, MOI, stage of development, self-esteem, functioning, and lack of security and was evident in all 16 articles. Influences from a family or peer-level examined stigma, relationships within the family, lack of parental support/monitoring or security, MOI, substance misuse in the family, family stress and violence, HIV status disclosure, and victimisation outside of the school context. Evidence pertaining to CAMH being influenced by the family level was found in n=13 articles. The third level of influence is the community-level and includes factors such as community context, limited resources or outreach programs, violence, neighbourhood disintegration, externalised stigma, victimisation, clinic experiences, and emotional and/or sexual abuse. It was evident in n=9 articles that CAMH can be influenced by factors pertaining to the community level. Last but not least, the structural-level includes factors such as healthcare systems and policies. It was evident in n=3 articles that comprehensive treatment approaches and decreased retention in HIV care serve as factors that may influence CAMH of HIV+ participants from a structural-level. Given that the community-level and structural-level may overlap in terms of service delivery and outreach programs; the two levels may be referred to interchangeably as factors may correspond on both levels.

5.3.4 Mental health themes

Three main themes emerged in the analysis pertaining to the affect that a positive HIV/AIDS diagnosis has on CAMH as depicted in figure 4 below. The first theme was the cognitive affect and the mental health condition being cognitive impairments relating to executive functioning, cognitive abilities, and adaptive functioning. The second theme that emerged in the analysis was the emotional affect and included mental health conditions such as depression, anxiety, suicide ideation, and PTSD. The third theme that emerged in the analysis was the behavioural affect with mental health conditions being CD, ADHD, and SUD. With n=3 articles making reference to cognitive affects (article *2,5;11*), a total of n=13 articles made reference to the emotional affect (article *1;2;3;4;6;7;8;10;12;13;14;15;16*), and only n=8 articles making reference to behavioural affects (article *1;2;3;4;6;8;14;15*).

Figure 4

Prevalence of Mental Health Themes



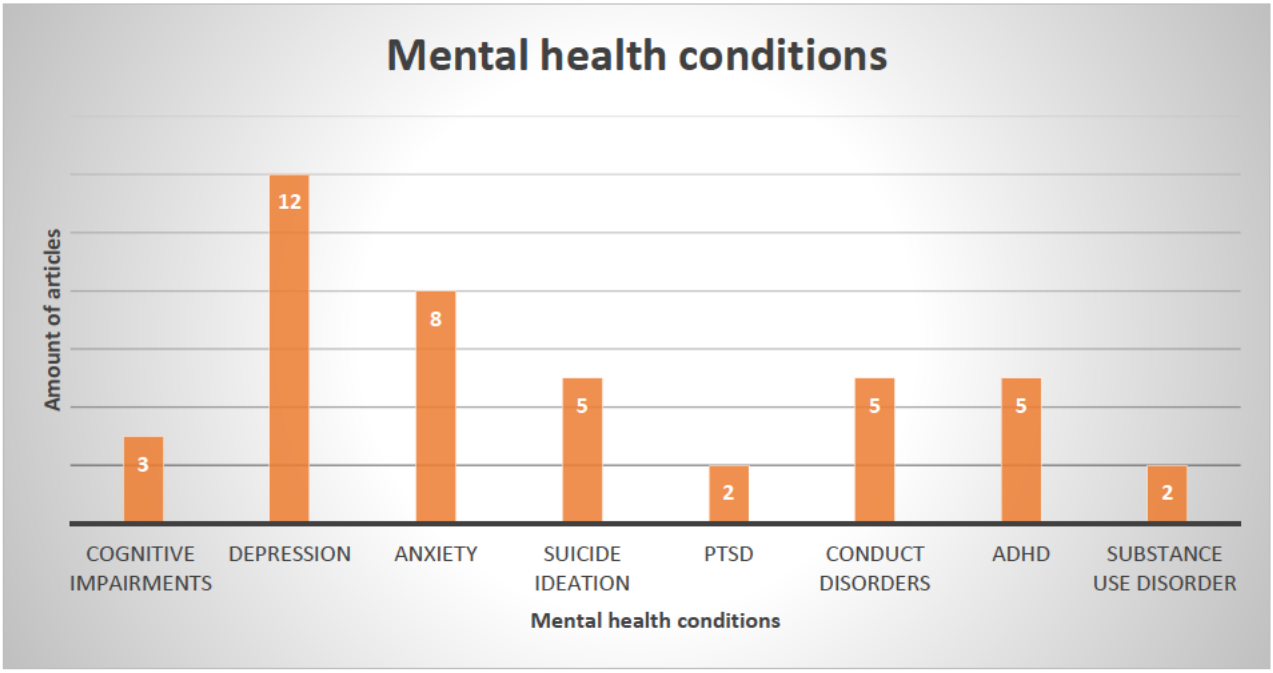
5.3.5 Mental health conditions within themes

As depicted in figure 5 below, the mental health conditions that were prevalent among the identified themes in the inclusive articles were depression, anxiety, suicide ideation, CD, ADHD, PTSD, SUD as well as neurodevelopmental or cognitive impairment. The leading mental health condition in the findings was depression with n=12 articles making reference to a depressive affect with regards to an HIV+ diagnosis on CAMH. This was closely followed by anxiety with n=8 articles making reference to anxiety disorders. Article *4* and Article *7* by Mellins et al. (2012) and Kim et al. (2014) respectively, indicate that anxiety and/or depression were found to be higher in females than in males. Suicidal ideation was referred to in a total of n=5 articles. Behavioural conditions such as CD and ADHD were also referred to in a total of n=5 articles respectively. Cognitive impairments were the second lowest mentioned mental health disorder with n=3 articles making reference to the condition. PTSD and SUD were the lowest mentioned mental health conditions with n=2 articles making reference to these conditions. This could be due to the implementation of interventions that can be beneficial in enhancing the mental health of HIV+ children and adolescents which in turn could lower the

prolonging of mental health conditions into more severe, and long standing disorders such as PTSD.

Figure 5

Prevalence of Mental Health Conditions



5.4 Cognitive affects

5.4.1 Cognitive impairments

Cognitive impairment can be understood as an impairment in perceptual, thinking, memory, and/or reasoning (Roy, 2013). In addition, it includes impairments in executive functioning and adaptive functioning. Overall, n=3 articles (article *2;5;11*) examined cognitive impairment as a prevalent mental health condition amongst children and adolescents who are HIV+. The authors of article *2* included n=319 participants between the 6-17-year age category and found that participants who had ADHD reportedly had lower health rating, coding scores as well as worse academic, and social functioning. Research conducted in article *5* included a total of n=558 participants with n=358 HIV+ participants, n=88/358 participants who have an AIDS defining illness, and n=200 HIV- participants. The authors of article *5* found that IQ scores were the lowest among the participants who have an AIDS defining illness. In addition, article *11* included a total of n=258 participants with n=173 PHIV+ participants of which n=45/173 participants were HIV+ and have an AIDS defining illness. Article *11* also included n=85 PHIV- participants. The results of article *11* indicate that PHIV+ participants performed poorly

on certain executive functioning measures, however, PHIV+ participants who have an AIDS defining illness performed significantly slower on tasks such as inhibition.

5.5 Emotional affects

5.5.1 Depression

Depression was examined in a total of n=12 articles (article *1;2;3;6;7;8;10;12;13;14;15;16*), which makes it the leading and most prevalent mental health condition that emerged in the included articles. Article *1* included n=162 HIV+ participants between the 6-18-year age category and found that approximately 17.8% of the participants had major depression. Research conducted in article *2* consisted of n=319 participants between the 6-17-year age category found that a lower CD4 count was associated with less severe depression symptoms, whereas a higher entry RNA viral load was associated with more severe depressive symptoms. Authors of article *3* conducted research on n=525 participants of which n=296 were PHIV+, and n=229 served as a peer comparison. The authors of this study found that the prevalence of depression was much higher in females than in males. Furthermore, participants who had a lower CD4% at the study entry was at a higher risk of developing depression in comparison to those individuals who had a higher CD4%. Article *6* was a systematic review of which n=38 out of a possible n=93 articles were included for analysis. The findings across the articles indicate a high prevalence rate of 25% for depression. The authors of article *7* conducted research on a total of n=562 HIV+ adolescents between the 12-18-year age category of which it was found that depression scores were a lot higher in females than in males. In saying that, the prevalence of depression in the female sample was at 21.6% whereas the prevalence of depression was at a lower 15.4% in the male sample. Article *8* included a total of n=683 participants comprising of n=218 participants who were HIV+, n=228 who were HIV affected, and n=237 who were HIV unaffected of which the participants across the three groups were between the 10-17-year age category. The study indicated that participants who were HIV+ or HIV affected demonstrated higher levels of depression in comparison to the HIV unaffected participants. The authors of article *10* conducted research on a total of 177 caregiver-child dyads who were between the 9-14-year age category. The authors found that lower total child difficulties were due to result in lower levels of depression and a higher self-esteem. In addition, article *12* found that out of n=343 HIV+ participants between the 13-19-year age category, 27% of the sample indicated signs of depression. Furthermore, major depression among South African HIV+ individuals has a prevalence of 18%-81% with depression being higher among children and adolescents who are AIDS orphans. Article *13* also included

participants with the age category being 13-17-years, and found that out of n=224 participants, 16% of the sample had major depression. The authors of article *14* included n=1024 HIV+ participants between the 10-19-year age category in their sample and found that the participants who were behaviourally infected reported high levels of depression. Additionally, article *15* examined n=1060 participants aged 10 to 19 and discovered that higher levels of depression were linked to things like treatment adherence and side effects, clinic encounters, stigma, emotional and/or sexual abuse, as well as being the target of bullying. Last but not least, article *16* included n=1053 participants between the 10-19-year age group of which 46% of the participants reported experiencing at least one or more symptoms of depression.

5.5.2 Anxiety

Overall, a total of n=8 articles (article *1;3;4;6;8;12;14;15*) included anxiety as a prevalent mental health condition amongst children and adolescents with an HIV+ diagnosis. Article *1* included n=162 HIV+ participants between the 6-18-year age category and found that approximately 32.2% of the participants had an anxiety disorder. The authors of article *3* conducted research on n=525 participants of which n=296 were HIV+, and n=229 served as a peer comparison. The authors of this study found that the prevalence of anxiety was much higher in females than in males. Article *4* included a total of n=325 participants with n=196 PHIV+, and n=129 PHIV- participants who completed a baseline interview with only 86% completing an 18th month follow up interview (PHIV+ n=166; PHIV- n=114). The assessment findings suggest females were most likely to experience psychiatric and anxiety disorders than males. The authors further contend that common categories for both groups and at both time points included anxiety-related illnesses such social and particular phobias, separation anxiety, generalized anxiety, and panic disorders. The authors of article *6* conducted a systematic review of which n=38 out of a possible n=93 articles were included for analysis. The findings across the articles indicate a high prevalence rate of 24% for anxiety disorders. Research conducted in article *8* included a total of n=683 participants comprising of n=218 participants who were HIV+, n=228 who were HIV affected, and n=237 who were HIV unaffected, all participants were between the 10-17-year age category. The study indicated that participants who were HIV+ or HIV affected demonstrated higher levels of anxiety in comparison to the HIV unaffected participants. In addition, article *12* found that out of n=343 HIV+ participants between the 13-19-year age category, 27% of the sample experienced anxiety. Furthermore, the authors of article *14* included n=1024 HIV+ participants between the 10-19-year age category in their study and found that the participants who were behaviourally infected reported

high levels of anxiety. Last but not least, article *15* looked at n=1060 participants aged 10 to 19 and discovered that higher levels of anxiety were linked to things like treatment adherence and side effects, anticipated and internalized stigma, emotional and/or sexual abuse, inadequate parental supervision, poverty, and being bullied.

5.5.3 Suicide ideation

A total of n=5 articles (article *1;12;13;14;16*) included suicide ideation as a prevalent condition in CAMH with an HIV+ diagnosis. Article *1* conducted research on n=162 HIV+ participants between the 6-18-year age category and found that approximately 18% of the participants were at risk for suicide. In addition, article *12* found that out of n=343 HIV+ participants between the 13-19-year age category, 24% of the sample indicated signs of suicidality or suicide ideation. The authors of article *13* included participants between 13-17-years of age and found that out of n=224 participants, 13% of the sample reported instances of suicidality with at least 9% being at a high risk for suicide. Furthermore, article *14* conducted research on n=1024 HIV+ participants between the 10-19-year age category and found that the participants who were behaviourally infected reported high levels of psychological vulnerabilities such as suicide ideation. Last but not least, article *16* included n=1053 HIV+ participants between the 10-19-year age group of which 8% of the participants reported suicidal ideation over the past month with at least 4% of the participants indicating that they have attempted suicide during the 30-day time period.

5.5.4 Post-Traumatic Stress disorder

Overall, n=2 articles (article *12;15*) included PTSD as a prevalent mental health condition amongst children and adolescents with an HIV+ diagnosis. The authors of article *12* included n=343 HIV+ participants between the 13-19-year age category in their research. From the 343 participants, the authors found that children who were orphaned due to HIV/AIDS were 67% more likely to suffer from PTSD. In addition, article *15* included n=1060 participants between the 10-19-year age category and found that PTSD was mostly prevalent among participants who were behaviourally infected, experienced stigma, emotional abuse as well as becoming victims of bullying.

5.6 Behavioural affects

5.6.1 Conduct disorders

Overall, n=5 articles (article *1;2;3;8;15*) examined CD as a prevalent mental health condition amongst children and adolescents with an HIV+ diagnosis. The authors of article *1* included

n=162 HIV+ participants between the 6-18-year age category and found that approximately 12.2 % of the participants were displaying symptoms of ODD. Research conducted in article *2* consisted of n=319 participants between the 6-17-year age category found that a lower CD4 count was associated with more severe CD symptoms. Authors of article *3* conducted research on n=525 participants of which n=296 were HIV+, and n=229 served as a peer comparison. The authors of this study acknowledged that psychiatric conditions among caregivers or older youth may serve as a risk factor in developing ODD or CD symptoms. Article *8* included a total of n=683 participants comprising of n=218 participants who were HIV+, n=228 who were HIV affected, and n=237 who were HIV unaffected of which the participants across the three groups were between the 10-17-year age category. The study indicated that participants who were HIV+ or HIV affected demonstrated higher levels of CD behavior in comparison to the HIV unaffected participants. Furthermore, article *15* included n=1060 participants between the 10-19-year age category and found that high CD scores were prevalent among participants who experienced stigma, emotional abuse as well as becoming victims of bullying.

5.6.2 Attention Deficit/Hyperactivity Disorder

A total of n=5 articles (article *1;2;3;4;6*) included ADHD as a prevalent condition in CAMH who have an HIV+ diagnosis. The authors of article *1* conducted a study on n=162 HIV+ participants between the 6-18-year age category and found that approximately 12.2 % of the participants were displaying symptoms of ADHD with 84% of the participants with an ADHD diagnosis being ADHD-I. Research conducted in article *2* consisted of n=319 participants between the 6-17-year age category found that a higher entry RNA viral load was associated with less severe ADHD-I. Authors of article *3* conducted research on n=525 participants of which n=296 were HIV+, and n=229 served as a peer comparison. The authors of this study found that youth who were living with people who are not biological parents may be at a greater risk for developing ADHD symptoms. Research conducted in article *4* included a total of n=325 participants with n=196 PHIV+, and n=129 PHIV- participants who completed a baseline interview with only 86% completing an 18^{th} month follow up interview (PHIV+ n=166; PHIV- n=114). The assessment findings suggest that PHIV+ participants were two times more likely to report ADHD at the baseline interview. Last but not least, article *6* was a systematic review of which n=38 out of a possible n=93 articles were included for analysis. The findings across the articles indicate a high prevalence rate of 29% for ADHD.

5.6.3 Substance use disorder

A total of n=2 articles (article *4;14*) examined SUD as a prevalent mental health condition amongst children and adolescents with an HIV+ diagnosis. The authors of article *4* included a total of n=325 participants with n=196 PHIV+, and n=129 PHIV- participants who completed a baseline interview with only 86% completing an 18th month follow up interview (PHIV+ n=166; PHIV- n=114). The assessment findings suggest that the use of substances were low at both the baseline as well as the follow up interview. However, authors of article *14* included n=1024 HIV+ participants between the 10-19-year age category and found that the participants who were behaviourally infected reported high levels of emotional disorders as well as an increase in substance use.

5.7 Interventions to enhance mental health

Out of the 16 identified articles that were included in the analysis, approximately 69% (n=11) of the articles made reference to interventions that can be beneficial in enhancing CAMH in an HIV+ population.

5.7.1 Family-level

The most prevalent intervention technique was found to be family and/or community-level interventions such as social support, as this type of technique was referred to in at least 6/11 articles (article *4;6;9;14;15;16*). In addition to the family-level interventions, a total of n=2 articles (article *6;14*) made reference to improving caregiver/parent – child relationships and involvement as this may enhance CAMH who have an HIV+ diagnosis. Furthermore, Boyes et al. (2019) in article *15* suggest treatment measures should incorporate and promote positive parenting styles where as Kamau et al. (2012) in article *1* suggest that interventions should also consider and include caregiver needs. This could lead to interventions that are rather family based of which n=2 articles (article *6;9*) made reference to MST or an evidence based family intervention (n=1) which can be located in article *10*. A total of n=3 (n=2; n=1) articles located in article *4, 6,* and *9* respectively made reference to mental health programmes such as CHAMP and the VUKA intervention of which both can be implemented on the family-level and showed significant improvements in terms of CAMH outcomes.

5.7.2 Community-level

Given that community factors may have an impact on CAMH with HIV, Ashaba et al. (2018) suggest that school based interventions (n=1) located in article *13* would be beneficial in providing support and reducing stigma. A school based intervention implemented on a

community-level is also supported by Bhana et al. (2014) in article *9* as the authors acknowledged psychoeducational interventions in promoting mental health among HIV+ children and adolescents.

5.7.3 Structural-level

In relation to interventions on the structural-level, authors such as Mellins et al. (2012) in article *4* highlight the importance of including comprehensive HIV programmes in a holistic treatment approach. Although no particular medical and/or psychological intervention was emphasized on the structural level, it is vital to adopt a multidisciplinary treatment approach to terminal illnesses.

5.8 Conclusion

The findings consistently showed that negative mental health conditions were prevalent among HIV+ children and adolescents. The most prominent themes that emerged were emotional and behavioral affects with only a few articles making reference to the cognitive implications of an HIV+ status. However, children and adolescents who have an AIDS defining illness were more prone to developing cognitive impairments due to disease progression. The findings from the various studies showed that cognitive, emotional and/or behavioral affects were evident across a variety of experimental contexts that represented a range of unique samples. A majority of the included samples took into consideration the MOI with only a few articles including both HIV+ and HIV- participants as well as those who are HIV+ and have an AIDS defining illness such as encephalopathy. The chapter concluded by acknowledging identified intervention strategies that can be used to enhance CAMH in an HIV+ population.

CHAPTER SIX: DISCUSSION

6.1 Introduction

In recent years, there has been a large volume of research conducted on HIV/AIDS and CAMH in an attempt to understand how terminal illnesses such as HIV/AIDS affects the mental health of this particular age group. This systematic review retrieved and reviewed quantitative studies conducted on CAMH who have an HIV+ diagnosis. The aim was to identify and condense meaningful research findings between the 2012-2022-time period with practical implications, such as, identifying the affect that an HIV+ diagnosis has on CAMH as well as uncover current interventional techniques that are considered effective in enhancing the mental health functioning in HIV+ children and adolescents.

The impact that an HIV+ diagnosis has on CAMH should be seen as a dynamic and interchangeable process that involves all socio-ecological levels, with each level offering dangers, sources of safety, and opportunities for CAMH enhancement. In addition to using the socio-ecological model as a theoretical foundation, the constructivist research paradigm suggests that reality is socially produced through human interaction. It is believed that interactions between people, their surroundings, and social context help people develop their sense of meaning. Following this, the constructivist research paradigm and the socio-ecological model put out by Mburu et al. (2014) were taken into account in order to address the important research questions in the systematic review.

In all, a total of n=90 articles were retrieved by conducting a desktop search on various academic platforms, using predetermined key words and phrases, and a total of n=58 articles were screened for eligibility. By assessing the evidence base, a total of n=16 quantitative articles that met the predetermined inclusion criteria were identified. Although only n=16 articles were eligible for inclusion in the systematic review, the articles adopted methods and study designs that are capable of producing strong evidence. The research evidence generally presented that an HIV+ diagnosis does indeed have a negative impact on CAMH.

With regards to the demographic characteristics of the samples included in the articles, only 44% (n=7) of the articles included participants who were below the 10-year age category. From the 7 articles, n=3 articles included participants from the age of 6, and only n=1 article included participants from the age of 7. This could imply that many children who have an HIV+ diagnosis may only begin to learn of their illness in their adolescent years. The possibility of learning about a terminal illness at a later stage in their childhood could be due to the HIV

infection presenting with more physiological pathology which results in the child being subjected to relevant medical screenings and frequent checkups. Furthermore, from a socio-ecological perspective, parents and caregivers of HIV+ children may choose to not disclose their child's HIV status based on the concern that a child may not have the cognitive capacity to understand the possible life changing consequences of living with a positive status or even as a means of protecting the child against stigma that they may encounter from the extended social structure.

6.2 The influence of HIV/AIDS on CAMH

HIV/AIDS can influence CAMH on various levels of the socio-ecological model proposed by Mburu et al. (2014).

6.2.1 Individual/ Family-level

CAMH can be influenced on the individual and/or family level due to a lack of parental support as well as parental HIV infection which may result in an inability to work, and a low source of income in the family or even changes in the family structure with an increase possibility of becoming AIDS orphans due to parental death.

On the contrary, children and adolescents who are HIV+ through behavioral infection or horizontal transmission, and reside in a home that have no other HIV+ family members, may find themselves receiving little to no parental supervision or support in terms of ensuring that their prescribed treatment is taken accordingly or even accompanying the child for clinic visits (Gadow et al., 2012). Furthermore, in relation to the individual-level, children and adolescents who are behaviorally infected may be reluctant to disclose their symptoms or status to their family due to the fear of rejection or the possibility of being disowned. In addition, an HIV+ individual may experience internalized stigma due to the guilt and shame that accompanies ruining a family reputation in certain society or cultural systems.

6.2.2 Community-level

In relation to the community-level, the mental health of HIV+ children and adolescents may be influenced by their interactions in schools, neighborhoods as well as the community in which they find themselves in. Children and adolescents who are influenced by the community-level report instances of external stigma and shame received by peers in school or even social exclusion and isolation from the educational environment and the neighborhood (Bhana et al., 2016; Ashaba et al., 2018; Sherr et al., 2018; Boyes et al., 2019).

6.2.3 Structural-level

CAMH can also be influenced from a structural-level such as from the healthcare system, the government, and society at large. HIV+ children and adolescents who report having a poor clinic experience and a reduced retention in care may be reluctant to attend frequent checkups (Sherr et al., 2018; Boyes et al., 2019). In certain instances, the HIV+ individual receives treatment based on presenting physical symptoms and mental health is left unattended to. Furthermore, there may be insufficient mandatory HIV testing policies in place, or easily accessible, and affordable health care services in low socioeconomic populations. It should be noted that holistic treatment or a multi-disciplinary means of approaching and treating an HIV+ diagnosis may only be accessible in well-established treatment clinics.

Although both males and females may be infected with the HIV pathogen through similar or different MOI, it is interesting to acknowledge how each gender is affected from the individual-level all the way to the structural-level. Factors from the family-level of influence include the responsibilities of transitioning into a parental figure, disclosing MOI or an HIV+ status to a culturally inclined family or even disclosing the end result of conceiving. This could also exacerbate individual-level factors such as internal guilt, shame, and additional responsibilities on the female individual. The factors on the community-level of influence include social status, modesty, and expectations of an individual's culture and community, with a female being most likely to be stigmatized on the basis of their behavior. Factors of influence on the structural-level include care and treatment received from legal to medical public settings, in government or private facilities. Females may be reluctant to report sexual abuse due to the fear of being stigmatized, isolated, and marginalized from the wider population. Furthermore, many females who choose to not report may have limited information on the procedures of attaining medical and mental assistance.

6.3 The affect an HIV+ diagnosis poses on CAMH

An HIV+ diagnosis does indeed affect CAMH in a negative manner. Based on the themes that emerged in the data, CAMH can be affected from a gender and age, and MOI perspective as well as from a cognitive, emotional, and/or behavioral viewpoint.

6.3.1 Gender and age

An intriguing finding regarding gender and age was that females were more likely than males to experience mental health disorders like depression and anxiety, according to studies by Kim et al. (2014) and Mellins et al. (2012). Additionally, males were more likely to present with

behavioral disorders such CD and/or ADHD whereas females were more likely to present with disorders related to anxiety (Mellins et al., 2012; Gadow et al., 2012). Furthermore, in terms of age, anxiety related conditions were more prevalent among the younger participants whereas the older participants were more likely to experience behavior related conditions.

The prevalence of emotional mental health conditions, such as anxiety and depression, being higher in females than in males could be exacerbated by biology and hormones with females being in their reproductive years which is in accordance with literature published by Van Dyk (2017). In addition, females are more likely to inhibit and suppress their emotions in order to be physically present for those around them. This relates to an instance whereby a nuclear family has multiple HIV+ members who suffer health deterioration and death. In saying that, there is a change in family structure and the children themselves take on a motherly or parental role.

6.3.2 Mode of infection

There is an increase in stigma associated to a young female losing her virginity before the age or act of marriage, as well as having an HIV+ status especially if their MOI is due to behavior or horizontal transmission. In terms of horizontal transmission in females, not only is HIV transmitted through consented vaginal intercourse but also through forceful acts such as sexual abuse and rape, as supported by literature published by Van Dyk (2017). In saying that, child and adolescent females are least likely to report instances of sexual abuse or rape due to fear of being judged, mistreated, and stigmatized by the wider community and society. Females may also conceive which pose a bigger cause of psychological distress in terms of reporting the incident, disclosing to family, and receiving the required treatment from medical centers, especially if there is a consideration or need for abortion.

In accordance with findings of Sherr et al. (2018), children and adolescents who were behaviorally infected with the HIV pathogen are more prone to experiencing issues pertaining to their mental health. Behaviorally infected children and adolescents in particular reported poor clinic experience, reduced retention in care as well as not adhering well to the prescribed treatment. With that, behaviorally infected children and adolescents displayed higher levels of internalized stigma, anxiety, depression, and may become more suicidal or turn to substance use as a means of counteracting the psychological vulnerabilities that they encounter (Sherr et al., 2018).

6.3.3 Cognitive viewpoint

An HIV+ diagnosis may affect CAMH from a cognitive viewpoint in terms of general intellectual functioning and/or executive, and adaptive functioning. A study which involved participants between the ages of 7 and 16 compared the cognitive and adaptive functioning of HIV+ children and adolescents with or without an AIDS defining illness to those of HIV- children and adolescents. It was found that the general intelligence of HIV+ children and/or adolescents with an AIDS defining illness were significantly lower than those who have a negative diagnosis or no instances of disease progression (Smith et al., 2012). With that, there is a possibility that a lower cognitive performance could be attributed to a prior diagnosis of an AIDS defining illness, such as encephalopathy, or an indication of possible AIDS disease progression. This highlights the importance of early screening and treatment measures that can be beneficial in not only containing the progression of HIV into AIDS but also as a preventative measure to reduce possible cognitive performance decline, and the risk of the development of future neurodevelopmental impairments (Smith et al., 2012).

In support of the findings produced by Smith et al. (2012), a study conducted approximately 4 years later aimed to compare the executive functioning in PHIV+ participants, who may or may not be significantly immunocompromised, and PHIV- participants. It was evident that PHIV+ participants performed poorly on certain executive functioning measures, such as inhibition (Nichols et al., 2016). It is interesting to note that in both studies, the participants who performed poorly in the cognitive concept being measured or displayed possible neurodevelopmental impairments were all HIV+ participants who has an AIDS defining illness or are significantly immunocompromised. This further signifies the importance of early HIV screening and treatment to prevent youth from developing AIDS defining illnesses. In both studies pertaining to the affect that an HIV+ diagnosis has on CAMH from a cognitive viewpoint, no particular intervention was noted as a means of enhancing mental health or cognitive functioning. However early, holistic screening and care deems beneficial for optimal physical and mental functioning.

In addition to neurodevelopmental impairments, such as thinking, reasoning, executive, and adaptive functioning, a large portion of the articles (88%) noted that an HIV+ diagnosis can affect CAMH from an emotional and/or behavioral point of view. The most prominent mental health categorical issues that emerged under the emotional themes were depression, anxiety, PTSD, and suicide ideation. The common mental health themes that emerged under the behavioral viewpoint were CD, ADHD, and SUD.

6.3.4 Emotional viewpoint

6.3.4.1 Depression

Although there was a lack of adequate comparison groups in the researched studies, the articles that were reviewed pointed out a number of valuable trends. In terms of the mental health categorical issues, depression was the highest ranked mental health condition in CAMH as approximately 75% of the articles recorded depression as an emotional consequence of an HIV+ diagnosis. Through the acknowledgement of previous research, the prevalence of depression among HIV+ children and adolescents within the South African context suggest that major depression is the most common mental health condition with a prevalence rate of 18% to 81% (Woollett et al., 2017).

Many children and/or adolescents who report instances of depression indicate a non-adherence to medication or report medication side effects, stressful life events that result in an HIV+ status due to MOI, death of family members which lead to AIDS orphanhood, social isolation, externalized stigma as well as a lack of support.

In conjunction to the psychological vulnerabilities that can be brought upon by the wider community, Boyes et al. (2019) agreed and concluded that indeed treatment side effects, clinic interactions and experiences as well as emotional indicators such as stigma, emotional abuse, and bullying were factors that were associated to higher levels of depression among children and adolescents.

Evidence indicates that a larger entrance RNA virus load was linked to more severe depressive symptoms, whereas a lower CD4% was connected with less severe depressed symptoms (Nachman et al., 2012). In saying that, Gadow et al. (2012) supported the finding derived by Nachman et al. (2012) in terms of CD4 cell count as the participants who had a lower CD4% at the study entry was at a higher risk of developing depression in comparison to those participants who had a higher CD4%. This emphasises the importance of implementing early and prompt HIV treatment in an attempt to contain the progression of the HIV pathogen and to maintain a healthy and steady CD4 cell count.

6.3.4.2 Anxiety

Following depression, anxiety was the second highest ranked mental health condition in CAMH as approximately 50% of the reviewed articles reported anxiety as a common mental

health issue among HIV+ children and adolescents. High levels of anxiety were linked to drug side effects, potential and internalized stigma, emotional and/or sexual abuse, bullying, inadequate parental support and supervision, and low socioeconomic status in children and adolescents (Boyes et al., 2019). In addition, participants who were behaviourally or horizontally infected reported high levels of anxiety in comparison to those participants who were infected with the HIV pathogen through vertical transmission (Sherr et al., 2018).

Symptoms of anxiety can be portrayed differently due to gender. As supported by Mellins et al. (2012), females are more likely to inhibit their feelings whereas males are likely to engage in physical behavior that goes against societal norms. This could be due to the possibility that feelings such as fear, isolation, loneliness, guilt, and anger that accompanies an HIV+ diagnosis could cause the male individual to physically exert their inner emotions on other individuals and objects as a coping or defense mechanism.

6.3.4.3 Suicide Ideation

Although not entirely a mental health condition, suicidal ideation was viewed as a result of or an indicator of mental health issues. Suicide ideation was the third highest ranked issue among HIV+ children and adolescents as approximately 31% of the reviewed articles made reference to suicide or suicidal ideation as a consequence of mental and/or physical health deterioration, stigma, and changes in the family structure. Although research indicates that behaviorally infected children and adolescents are highly prone to experiencing psychological vulnerabilities internally as well as from the external system, some studies may reveal otherwise. In 2019, researchers examined the direct effects of social support services on depressive symptoms, suicidal thoughts, and suicidal attempts. It was evident in the study that vertical transmission of HIV can lead to an increase in experiences of stigma, depression, and suicidal ideation/attempt (Casale et al., 2019). As supported by previous articles that were included in the review, an HIV+ status through vertical transmission means living with an HIV+ status within a household with other family members who have HIV. This poses a bigger risk of psychological vulnerability and suicidal ideation due to gradual or sudden changes in the family structure and lack of parental support. Furthermore, there may also be a risk of poverty due to working class family members not being able to meet occupational responsibilities due to physical and/or mental health deterioration. This can exacerbate intense emotional feelings and feelings of being inadequate which could increase the chances of the individual developing suicidal tendencies.

6.3.4.4 Post Traumatic Stress Disorder

PTSD was evident as an emotional consequence that an HIV+ diagnosis may pose on CAMH, children and adolescents may not always display PTSD symptomology due to the implementation of beneficial interventional strategies that enhance mental health functioning. Furthermore, a possibility of reduced reports or confirmed diagnosis of PTSD could be due to the symptom time period of being more than a month in order to make a PTSD diagnosis. Nevertheless, children and adolescents who did have a PTSD diagnosis were mostly behaviorally infected individuals who also reported experiences of enacted stigma, internalized stigma, emotional abuse as well as becoming a victim to bullying (Boyes et al., 2019). In relation to PTSD, most children and adolescents who had a PTSD diagnosis did not just have an HIV+ diagnosis, but were also orphaned due to AIDS. Research indicates that children and adolescents who are AIDS orphans are 67% more likely to suffer from PTSD in comparison to those who are orphaned due to other means (Woollett et al., 2017).

6.3.5 Behavioral viewpoint

6.3.5.1 Conduct Disorders

Following the various emotional disorders, CD was ranked the third highest condition as 31% of the reviewed articles made reference to CD among HIV+ children and adolescents. As uncovered by Mellins et al. (2012), it is evident that males, in particular older males, are more likely to present with behavioral conditions such as CD with a prominent type of CD being ODD. In saying this, approximately 12.2 % of children and adolescents who were prone to CD behaviour were displaying symptoms of ODD as indicated by Kamau et al. (2012). In addition, there seems to be a link between CD4% and the likelihood of CD behaviour as a lower CD4% was associated with more severe CD symptomology, as supported by the findings of Nachman et al. (2012). Furthermore, children and adolescents who display CD related behavior are usually precipitated by experiences of stigma, emotional abuse, and bullying (Boyes et al., 2019).

6.3.5.2 Attention Deficit/ Hyperactivity Disorder

Along with the prevalence of CD and suicide ideation, ADHD was also ranked the third highest condition as 31% of the reviewed articles made reference to ADHD among HIV+ children and adolescents. It is evident that HIV+ children and adolescents who are behaviorally infected are

likely to present with ADHD symptomology. In addition, the emergence of ADHD was common amongst males in comparison to females. Furthermore, research indicates that HIV+ children and adolescents who are not living with their biological parents may be at a greater risk for developing ADHD symptoms (Gadow et al., 2012). A large portion of individuals who display symptoms of ADHD present with ADHD-I as 84% of the participants who received an ADHD diagnosis presented with the inattentive subtype in a study conducted by Kamau et al. (2012). It should be noted that a higher entry RNA viral load was associated with less severe ADHD-I symptomology according to Nachman et al. (2012).

6.3.5.3. Substance Use Disorder

HIV+ children and adolescents may also engage in behaviour that includes substance ingestion which may result in a problematic behavioural pattern that could lead to clinically significant impairment or distress in the individual (APA, 2013). Although not a prominent mental health feature in HIV+ children and adolescents as supported by Mellins et al. (2012) and Mellins et al. (2009), a minority of evidence suggest that SUD related behaviour is prevalent among behaviourally or horizontally infected children and adolescents who may also be at risk for developing emotional disorders due to negative life experiences within the socio-ecological system (Sherr et al., 2018).

6.4 Intervention strategies to enhance HIV+ CAMH

By being consistent with the socio-ecological model, interventions that aim to promote or enhance CAMH who have an HIV+ diagnosis should occur on various socio-ecological levels. In addition, and by being cognizant of the developmental category of HIV+ children and adolescents, interventions that aim to enhance mental health functioning need to be dynamic and flexible due to children and adolescents being in a developmental transition from childhood to adolescent years to adulthood.

Many intervention strategies have been considered and tested in an effort to improve HIV+ CAMH by adopting a holistic approach to the impact that HIV/AIDS has on CAMH in relation to the various socio-ecological levels.

6.4.1 Individual-level

It is interesting to note that several of the identified intervention strategies that can be used to enhance CAMH are included from the family-level onwards. None of the studies included in the present systematic review identified individual psychotherapeutic techniques that deem

beneficial or have been trialed and implemented on the samples of the various studies. However, literature published by Nassen et al. (2014) indicate that individual psychotherapy techniques such as CBT, IPT, and psychodynamic psychotherapy are effective strategies in enhancing HIV+ CAMH.

6.4.2 Family-level

In terms of the family-level which focuses on the individual's immediate family and environment, a prominent mental health intervention technique is MST or family therapy, which corresponds to an identified intervention technique proposed by Patel et al. (2008). These forms of therapy can be used to enhance the mental health of HIV+ children and adolescents by providing a platform that enables and promotes understanding, acceptance, and open communication within a family who has HIV+ members (Mellins & Malee, 2013; Bhana et al., 2014). In saying that, one would expect that factors addressed on the family-level may improve functioning on the individual-level as the HIV+ child or adolescent may develop resilience and a reduce feeling of internalized stigma.

The CHAMP is a collaborative HIV/AIDS mental health program that can serve as a family based intervention program which proved to be beneficial across a variety of cultures (Mellins & Malee, 2013). In addition, the "VUKA" family program deemed promising in terms of enhancing mental health functioning as the program did not just focus on CAMH with an HIV+ diagnosis, but could also be applied in supporting, assisting, and enabling families to promote the health and psycho-social wellbeing of children and adolescents who were infected through vertical transmission (Bhana et al., 2014).

In conjunction to MST, parent/caregiver – child involvement and positive parenting styles are also considered to be beneficial intervention techniques as the HIV+ child or adolescent may experience an increase in support, acceptance, and the ability to communicate with their caregivers without the fear of being stigmatized or excluded from the family system (Mellins & Malee, 2013; Sherr et al., 2018; Boyes et al., 2019). In addition, parents and/or caregivers will have the opportunity to develop greater insight into the disease that their child has been diagnosed with as well as risk and prognostic factors that are linked to HIV and overall health.

6.4.3 Community-level

In relation to the community-level, CAMH may be influenced by their interactions in schools, neighborhoods as well as the community in which they find themselves in. Interventions such as social support deems beneficial as a means of mitigating isolation, stigma, possible

depression and anxiety as well as suicide. In saying that, social support was the most prevalent intervention technique that can be applicable on both the family and/or community-level interventions. Furthermore, given that children and adolescents are of school going age, a school based intervention/ awareness campaign could be beneficial in promoting support and reducing stigma among the age group and within the school environment (Ashaba et al., 2018). In addition, a school based intervention may provide the basic support that may benefit several children and adolescents who are HIV+ and possibly AIDS orphans, and who do not have a secure family environment.

6.4.4 Structural-level

CAMH can also be influenced from a structural-level such as from the healthcare system, the government, and society at large. With that being acknowledged, interventions that can be beneficial in enhancing CAMH include but are not limited to early and holistic treatment (Kamau et al., 2012; Mellins et al., 2012). Treatment clinics should provide an equal focus on physical health, the progression of HIV as well as the mental health functioning of the HIV+ individual. In addition, routine checkups for physical and mental health deterioration as well as psychoeducation from a multidisciplinary perspective to educate the HIV+ child, adolescent, and/or family on the possible physiological and psychological changes that are expected due to an HIV+ diagnosis could be beneficial in mental health enhancement.

6.5 Conclusion

In line with the socio-ecological theoretical framework and the constructivist approach to research, such as how individuals create meaning and are influenced through interaction with each other, and within their environment, it is evident as to how an HIV+ diagnosis affects CAMH from various levels in the socio-ecological system. The systematic review uncovered that the most prominent mental health conditions that affect an HIV+ child and adolescent are depression and anxiety. In saying that, increasing parent/caregiver – child involvement and communication as well as parent, peer, teacher support, and support from society and treatment clinics can be beneficial in enhancing the physical and mental functioning in HIV+ youth.

CHAPTER SEVEN: CONCLUSION

7.1 Introduction

The main findings and discussion presented in chapter five and chapter six respectively were informed by 16 quantitative desktop articles comprising of local and international research conducted on HIV/AIDS and CAMH. It is evident that an HIV+ status or diagnosis can influence CAMH on the individual-level, the family-level, the community-level as well as the structural-level. This is in accordance with the socio-ecological model, proposed by Mburu et al. (2014), that was considered as a theoretical framework for the current research study. Furthermore, an HIV+ diagnosis can pose possible cognitive, emotional, and/or behavioral consequences on CAMH. This further indicates the importance of early screening and treatment measures that adopt a holistic and comprehensive approach to HIV treatment. Various intervention strategies to enhance CAMH were identified in relation to the service that is applicable and can be provided on the outlined socio-ecological levels of care. Given that the systematic review based its findings on secondary data, the secondary data consisted of research that were published within the past decade (2012-2022). Nevertheless, based on the findings of the systematic review, there are recognized limitations that should be taken into account, along with opportunities and suggestions for further study in the area of HIV/AIDS and mental health.

7.2 Limitations

The systematic review's conclusions should be taken into account within the review's constraints. There are several methodological limitations in this field of research. The primary limitation to note is with regards to the generalizability of the findings due to issues concerning the sampling and selection in the articles. This particular limitation occurs when a purposive or convenience sampling measure is utilized to select participants, however, the participants may not represent the general population which may cause sample or selection bias.

Due to the nature of the topic and the population being studied, considerations had to be made in terms of the sample size and the inability to produce sample groups in the same study that were equal in ratio and size. This is largely due to the accessibility of participants that are eligible for participation as participants would be required to have an HIV+ diagnosis. In addition, given that the articles focused on children and adolescents, a struggle that could hinder the sampling procedure would be obtaining consent from the respective parents and caregivers which may serve as a reason pertaining to a small sample.

Although there are methodological limitations to consider, a systematic review is limited by the quality of the articles or literature that has been analyzed and synthesized. With that said, the papers that were included in this systematic review were put through a rigorous screening process by evaluating the evidence base in terms of the planned inclusion and exclusion criteria. Only the articles that met the full inclusion criteria deemed appropriate for further analysis and synthesis to ensure adequate quality and focus in the systematic review.

Although the articles met the predetermined inclusion criteria, there were several limitations of the present study that should be considered. Firstly, out of a possible 90 articles that were obtained; only 16 articles met the inclusion criteria. This may indicate that there is a dearth of papers or other writing that addresses the goals and objectives of the current study.

A second limitation to note is that there was a lack of comparison groups in the majority of the articles that were included in this review as only 5 articles included both HIV+ and HIV- participants.

A third limitation to note is that at least half of the articles included in the systematic review had a sample consisting of participant who were 10-years of age or above, with only 44% of the articles making reference to participants who are below the 10-year age category. Although this systematic review included children and adolescents who were of school going age, there seems to be limited research conducted on younger children.

In addition, it was noted that majority of research conducted on HIV/AIDS and mental health base the findings in relation to mental health conditions or disorders. With that being said, there seems to be limited accessible research that is based on HIV/AIDS and mental health with a particular reference to the well-being of an individual; for example, taking into consideration Ryff's 6 factor model of psychological wellbeing.

7.3 Recommendations

Future research should be conducted with the aim to address the limitations that were identified in the systematic review. Based on the findings of the systematic review, it may be beneficial for future research to examine the longitudinal consequences of HIV/AIDS and mental health from childhood into adolescence, and into emerging adulthood. This could provide researchers and healthcare professionals with an indication if the identified mental health issues reduce, evolve or remain stable over a period of time.

Future research could also be conducted to identify if prolonged exposure or disease progression of the HIV pathogen causes impairments in future academic and social functioning post psycho-social and/or intervention rehabilitation. This would provide an opportunity for more longitudinal and experimental research designs that incorporate comparison groups such as HIV- or HIV unaffected individuals in the sample.

Furthermore, research conducted over the last decade provided and acknowledged interventions that can be used to enhance HIV+ CAMH, however, these intervention recommendations were provided based on the findings of their respective studies. With that being said, future research should aim to examine interventions on the various outlined socio-ecological levels with the intention to enhance and promote current interventions, and to identify a possible gap in holistic service delivery to individuals who have terminal illnesses such as in the case of HIV/AIDS. This would also provide a gateway for collaborating interventions and implementing tailor made interventions that are targeted at specific developmental stages from childhood through to adulthood.

7.4 Conclusion

In light of the research undertaken, it can be concluded that there is a significant affect that a HIV+ diagnosis pose on CAMH. It must be stated that the systematic review was unable to distinguish if negative mental health outcomes were a result solely of an HIV+ diagnosis and the consequences thereof, or whether mental health outcomes are a manifestation of a variety of co-morbid conditions. Although the research study found evidence of the affect that an HIV+ diagnosis has on CAMH, only 16 articles that were relevant and corresponded to the predetermined inclusion criteria were sourced. This either points to the limited availability of published recent studies that make reference to the critical research questions and inclusion criteria or merely because of the accessibility of the chosen age category. Seeing that majority of the participants within this age category require parental or caregiver consent to participate in research and because children and adolescents are viewed as a vulnerable population, many parents or caregivers of HIV+ children and adolescents may become reluctant in allowing their child to engage in research studies.

Given the findings produced in the study, various identified interventions are located from the family-level onwards, with minimal interventions on the individual-level. In saying that, there is an increasingly strong need to create or develop a comprehensive treatment approach to HIV/AIDS as well as various other terminal illnesses. In doing so, treatment approaches would

be able to account for the negative effect that a terminal illness has on mental health as well as how psychological distress may lead to disease progression or treatment non-adherence. Furthermore, by being cognizant of the relationship and components between physical and mental health; healthcare workers, researchers as well as families of individuals with terminal illness may develop a greater understanding of the consequences of the illness as well as what to expect in terms of cognitive, emotional, and/or behavioral changes.

The systematic review concludes that an HIV+ diagnosis does indeed affect CAMH in a negative manner. In addition, the systematic review evidences the need for further research in the field of mental health and HIV/AIDS which may provide a gateway for a more extensive and holistic understanding of the relationship between physical and mental health as well as uncover more effective and non-pharmaceutical interventions for CAMH enhancement.

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Appendices

Turnitin similarity report

Dissertation submission final

ORIGINALITY REPORT

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SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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Ethical clearance letter

27-09-2022
Ms Waseela Essop-Mansoor (219060325)
School Of Applied Human Sc
Pietermaritzburg

Dear Ms Waseela Essop-Mansoor,

Original application number: 00017671
Project title: The psychology of Human Immunodeficiency Virus: A systematic review of the affect that Human Immunodeficiency Virus /Acquired Immunodeficiency Syndrome has on the mental health of children and adolescents.

Exemption from Ethics Review

In response to your application received on 08 June 2022, your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW.**

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

PLEASE NOTE:
Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,

[redacted]

Prof Johanna Hendrina Buitendach
Academic Leader Research
School Of Applied Human Sc