

Chapter 2

Linkages between HIV/AIDS, HIV/AIDS-psychoses and parenting:

A systematic literature review

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Abstract

In 2010, 30% of South African women who were pregnant had a diagnosis of HIV. In addition to possible loss of the mother in the future, children may also be affected by the secondary symptoms of AIDS. Psychotic symptoms are one such consequence that might disrupt the attachment relationship with children. This study was aimed to examine the published evidence on the linkages between HIV, psychosis and parenting. Databases were searched for studies on HIV/AIDS, psychosis and parenting; 51 relevant empirical studies were reliably identified and coded. No study simultaneously linked HIV/AIDS, psychosis and parenting. Twenty three studies reported on the links between HIV infection and parenting, yielding various protective and risk factors but not psychosis. Thirteen studies reported on the links between HIV and psychosis, with psychosis being a secondary outcome of later stages of AIDS, a side effect of medication, or a comorbid disease due to common risk factors. Fourteen studies reported associations between psychosis and parenting. The impact of HIV infection of mothers on their parenting is beginning to be understood, but many underlying factors are still unknown. Psychosis appears to be a potent, but overlooked factor, in supporting families affected by HIV/AIDS.

Globally the human immunodeficiency virus (HIV) is still rapidly spreading with an estimated 30.8 million adults living with the virus worldwide. The highest concentration of

people living with HIV is in Sub-Saharan Africa (Joint United Nations Programme on HIV/AIDS & World Health Organization, 2009). South Africa leads the world with the highest prevalence. In 2011 an estimated 5.24 million people were living with HIV/AIDS, which equates to about 11% of the national population. Black African females between ages 20 and 34 years are the most affected demography (with a prevalence of 33% for females aged between 25 and 29 years and 29% for females aged between 30 and 34 years) (Human Sciences Research Council, 2009; Statistics South Africa, 2011). Approximately 81% of African women have raised a child in their lifetime (Statistics South Africa, 2011). Living with HIV may pose potential threats to the well-being of the mother, but also to that of her children. Being chronically ill, the mother may have difficulty fulfilling the needs of her children (Murphy, Marelich, Armistead, Herbeck & Payne, 2010). One risk associated with HIV/AIDS is the development of HIV associated psychosis. When psychotic symptoms are added to an already vulnerable situation, the parent-child dyad may experience increased and unique stressors, such as the mother being less physically or emotionally available for her developing child, or less able to provide a secure home environment. Little is known, however, about the impact of psychosis on parenting, especially in the context of physical illnesses such as HIV/AIDS.

The term psychosis is not easily defined and usually refers to severe psychiatric disorders with an emphasis on “loss of reality testing and impairment of mental functioning, manifested by delusions, hallucinations, confusion, and impaired memory (and) severe impairment of social and personal functioning characterized by social withdrawal and an inability to perform the usual household and occupational roles” (Sadock & Sadock, 2007, p. 272). The presentation of these symptoms and the impairments that it causes may have important consequences for parenting.

The purpose of this systematic literature review was to examine the mechanisms that link the variables HIV/AIDS, psychosis and parenting when paired with each other. The possible dynamics of HIV/AIDS and psychosis in relation to parenting were analysed.

Method

Using EBSCOhost various databases were searched including Academic Search Premier, Africa-Wide Information, CINAHL, ERIC, Health Source, Medline/Pubmed, PsycARTICLES and PsycINFO. In order to find studies on the interrelationships between HIV/AIDS, psychosis and parenting, for each of the three factors a set of search terms was created. Searches were formulated by using search terms related to caregiving (caregiv*, mother*, parent*, parent-child relationship, attachment*, reactive attachment disorder), psychosis (schizo*, psychotic, psychosis, psychoses), and HIV (HIV, AIDS, human immunodeficiency virus, acquired immunodeficiency virus). These search terms were then used in combination with one another so that the results always included literature relating to at least two of the themes. The EBSCOhost literature search was based on peer reviewed publications from 1996 to 2011. This starting year was chosen because of the advances made in antiretroviral medication and policies governing access to treatment in the last 15 years, leading to changes in the course of the illness and consequently the psychological repercussions. Limits were not set on languages retrieved. In addition, literature was hand selected from citations in the aforementioned search results. Studies were included if the focus was on parenting by persons with a psychotic illness or HIV/AIDS or studies dealing with the phenomenon of HIV/AIDS and psychotic symptoms. Studies that centred on pharmacology and medical aetiology were excluded. Case reports and primary studies that were already included as parts of a review were also excluded. Figure 1 describes the selection of the final set. Of the initial 4370 articles (16 August 2011), 4111 were excluded based on title. Abstracts from 259 articles were retrieved and an additional 179 articles were

excluded leaving 80 articles for full review. Of these 29 were excluded. The screening was done by the first author; reliability testing was done with the second author. The inter-rater agreement for the selection on titles was 95% (Cohen's kappa = .76), for the abstracts the inter-rater agreement was 95% (Cohen's kappa = .64), and for the full text articles the inter-rater agreement was 100% (Cohen's kappa = 1.0). Information from relevant articles was tabulated in order to simplify comparisons between methods and results (see Table 1, 2 & 3).

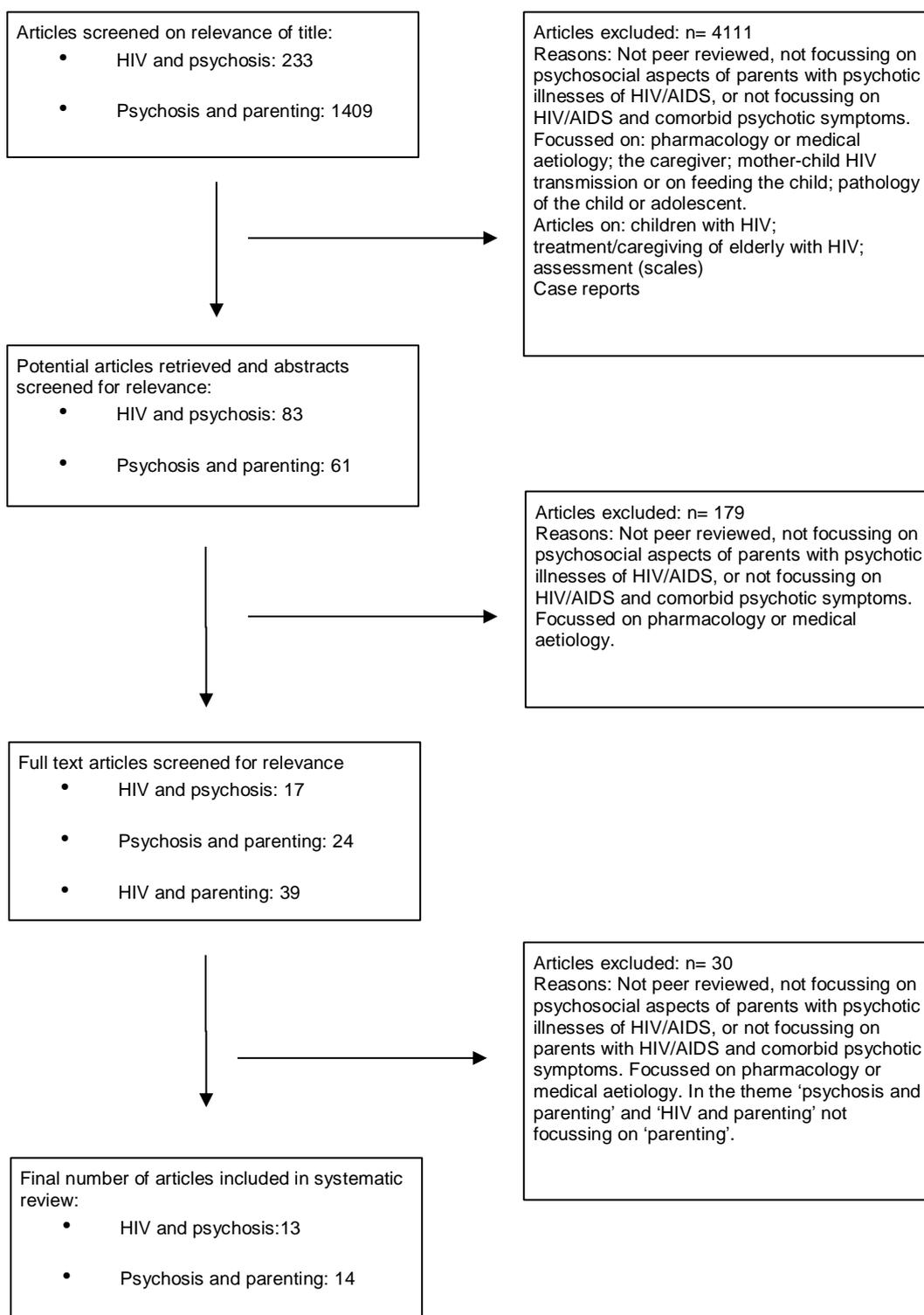


Figure 1: Diagram of the process of selection of literature for the systematic review

Table 1: Summary of articles on HIV and psychosis (n = 13)

Author and year	Design	Sample size and origin	Instruments or main themes of literature review	Themes relevant to review
Alciati, Fusi, Ferri, & Mellado. 2001.	Quantitative	26 patients with and 26 without cerebral opportunistic infections. Italy	<ul style="list-style-type: none"> • Semi-structured psychiatric interview • Psychopathology assessment scale • Medical laboratory tests 	Prevalence Clinical presentation
Alvarez, Vilarino, Rodriguez, & Vidal. 2008.	Quantitative	50 HIV+ patients. Spain	<ul style="list-style-type: none"> • Nursing clinical files/patient case histories • Social demographical • Drug addiction questionnaires 	Prevalence
De Ronchi, Bellini, Cremante, Ujkaj, Tarricone, Seller, Quartesan, Piselli & Scudellari. 2006.	Quantitative	12 HIV + and 10 HIV- participants with first episode psychosis. Italy	<ul style="list-style-type: none"> • DSM-III-reviewer • Brief psychiatric rating scale (BPRS) • Hamilton Depression Rating Scale • Hamilton Anxiety scale • Mini-mental status examination 	Clinical presentation
De Ronchi, Faranca, Forti, Ravaglia, Borderi, Manfredi, & Volterra. 2000.	Quantitative	12 HIV+ new-onset psychosis and 15 HIV+ and no psychosis. Italy	<ul style="list-style-type: none"> • Clinical history • Autopsy • CT brain scan 	Prevalence Risks and psychosis Clinical presentation

Dolder, Patterson, & Jeste. 2004.	Literature review	86 papers on HIV infection in older adults with psychotic disorders and new-onset psychosis. USA	<ul style="list-style-type: none"> • Clinical features • Treatment issues • Research needs 	Risks and psychosis
Gray, Brewin, Noak, Wyke-Joseph, & Sonik. 2002.	Literature review	Papers on HIV infection and schizophrenia. Number of papers not mentioned. UK	<ul style="list-style-type: none"> • Implications for research • Policy • Clinical practice 	Risks and psychosis
Maling, Todd, Van der Paal Grosskurth, & Kinyanda 2011.	Quantitative	272 HIV+ patients with first-time admission. Uganda	Demographic analysis and structured interviews using DSM-IV-TR classifications	Prevalence
Mijch, Burgess, Judd, Grech, Komiti, Hoy, Lloyd, Gibbie, & Street. 2006.	Quantitative	2981 HIV+ patients. Australia	Demographic analysis ICD-9 classifications	Prevalence Risks and psychosis
Owe-Larsson, Säll Salamon, & Allgulander. 2009.	Literature review	Papers on disorders in HIV+ patients. Number of papers unknown. Sweden	Clinical features and current knowledge on the treatment of psychiatric symptoms	Risks and psychosis Comorbidity
Parry, Blank, & Pithey. 2007.	Literature review	Papers on HIV+ among persons with mental illness and substance abuse. Number of papers unknown. USA	The threat of HIV and strategies for reducing the threat	Risks and psychosis
Säll, Salamon, Allgulander, & Owe-Larsson. 2009.	Quantitative	38 untreated, HIV+ male mine workers first admitted for psychiatric treatment. South Africa	Psychiatric symptoms	Comorbidity

Twamley, Narvaez, Sadek, Jeste, Grant, & Heaton. 2006.	Quantitative	27 unemployed patients with schizophrenia, 27 unemployed HIV+ and 27 employed HIV- people. USA	<ul style="list-style-type: none">• Vocational abilities• A comprehensive work history interview	Occupational functioning
Walkup, Cramer, & Years. 2004.	Quantitative	244 students. USA	Vignettes on stigma about people with the HIV and schizophrenia	Stigma

Table 2: Summary of articles on HIV and parenting (n = 23)

Author and year	Design	Sample size and origin	Instruments or main themes of literature review	Themes relevant to review
Antle, Wells, Goldie, De Matteo, & King. 2001.	Qualitative	86 HIV+/AIDS families. Canada	Interviews on parent's needs	Stress and concerns HIV-status disclosure and stigma
Brackis-Cott, Mellins, Dolezal, & Spiegel. 2007.	Qualitative and quantitative	100 HIV-mothers and children and 120 HIV+ mothers and children. USA	<ul style="list-style-type: none"> • Interviews • Beck depression inventory • State trait anxiety inventory • Child depression inventory • State trait anxiety inventory for children 	HIV-status disclosure and stigma
Bursch, Lester, Jiang, Rotheram-Borus, & Weiss. 2008.	Quantitative	409 adolescents from 269 HIV+ parents. USA	<ul style="list-style-type: none"> • Brief Symptom Inventory • Parker Parental Bonding Instrument • Life experiences survey • Parental Coping Style 	Stressors and concerns
Hebling, & Hardy. 2007.	Qualitative	12 HIV+ mothers. Brazil	Interviews on feelings related to motherhood	Maternal bond Mothering role Stressors and concerns

Hough, Brumitt, Templin, Saltz, & Mood. 2003.	Quantitative	147 mother-child dyads where the mothers are HIV+ and the children HIV-. USA	<ul style="list-style-type: none"> • General Symptom Subscale of the HIV Assessment Toll Revised • Appraisal of support scale • Dealing with illness inventory • Profile of mood states • Child perceived coping questionnaire • Family Peer Relationship Questionnaire. • Child Behaviour Checklist 	Stressors and concerns Social support Mothering role
Ji, Li, Lin, & Sun. 2007.	Mixed methods	Health care workers, local school teachers, village leaders, persons living with HIV+ persons, and caregivers for children affected by HIV/Aids. China	Focus groups and semi-structured interviews on needs of the family and family members	Stressors and concerns Stigma and social support
Johnson, & Lobo. 2001.	Quantitative	Mother-child interactions of 25 HIV+ and 25 HIV- mothers and children. USA	<ul style="list-style-type: none"> • Nursing Child Assessment Teaching Scales • Centres for Epidemiologic Studies Depression Scale • Bayley Infant Neurodevelopmental Screener 	Mothering role
Jones, Foster, Zalot, Chester, & King. 2007.	Quantitative	86 HIV+ mothers and their non-infected children. USA	<ul style="list-style-type: none"> • Demographics & medical variables • Interaction Behaviour questionnaire • Child behaviour checklist • Child depression inventory • Youth Self report 	Maternal bond

Kennedy, Cowgill, Bogart, Corona, Ryan Murphy Nguyen, & Schuster. 2010.	Qualitative	33 HIV+ parents. USA	Semi-structured interviews on disclosure of parents HIV status to children	HIV-status disclosure and Stigma
Lester, Stein, Bursch, Rice, Green Pennimann, & Rotheram-Borus, 2010.	Quantitative	161 HIV+ mothers and 103 neighbourhood control mothers with children between 12 and 21 years. USA	<ul style="list-style-type: none"> • BSI • Conflict-Resolution Behaviour Questionnaire • Parker Bonding Instrument • Adult-Adolescent Parenting Inventory • Family Functioning Scale 	Maternal bond Stress and concerns
Mckee, Jones, Roland, Coffelt, Rakow, & Forehand. 2007.	Quantitative	Inner-city African American children aged 9 - 11 of 43 HIV+ mothers (CD4<600) and 65 HIV/Aids-mothers. USA	<ul style="list-style-type: none"> • Brief Symptom Inventory • Child report short form- Interaction Behaviour Questionnaire. • Schoolager's Coping Strategies Inventory • Child Depression Inventory 	Maternal bond
Mellins, Brackis-Cott, Dolezal, Leu, Valentin, & Meyer-Bahlburg, 2008.	Quantitative	100 children with HIV+ mothers and 120 children with HIV- mothers. USA	<p>Children:</p> <ul style="list-style-type: none"> • Child Depression Inventory • State Trait Anxiety Inventory-Child version (STAI) • Child Behavior Checklist- Parent Version <p>Mothers:</p> <ul style="list-style-type: none"> • Beck Depression Inventory • Adult STAI • Monitoring the future • Pubertal Developmental Scale 	HIV-status disclosure and stigma
Murphy. 2008.	Literature review	Papers from 1994 to 2008. USA	Mother's disclosure of their HIV status to their children	HIV-Status disclosure and stigma

Murphy, Marelich, Armistead, Herbeck, & Payne, 2010.	Quantitative	69 HIV+ mothers with at least one child between ages 6 and 12. USA	<ul style="list-style-type: none"> • PSI • RAND Mental Health Inventory • Family Routines Questionnaire • Child Behaviour Checklist 	Stress and concerns Mothering role Social support
Murphy, Marelich, Herbeck, & Payne. 2009.	Quantitative	118 children (mean age 13) affected by maternal HIV/Aids. USA	<ul style="list-style-type: none"> • Children's depression inventory • Revised Children's manifest Anxiety Scale • Piers-Harris Children's Self-Concept Scale • Child Behaviour checklist • Family Routines Questionnaire 	Mothering role Physical illness and hospitalisation
Murphy, Roberts, & Herbeck. 2011.	Qualitative	57 HIV+ mothers. USA	Interviews on missing out on activities with their children	Physical illness and hospitalisation
Ndlovu, Ion, & Carvalhal, 2010.	Mixed methods	6 HIV+ women without psychiatric illnesses. Canada	<ul style="list-style-type: none"> • Medical Outcomes Study HIV Health Survey • Beck Depression Inventory • Social Support Questionnaire • Ways of coping questionnaire-R • Interviews 	Stress and concerns Social support
Nelms. 2005.	Qualitative	16 HIV+ mothers with dependent children. USA	Phenomenological semi-structured interviews on mothering and end of life issues	HIV-status disclosure and stigma

Palin. 2007.	Qualitative and quantitative	225 HIV+ and HIV- mothers and children aged 11-16. South Africa	<ul style="list-style-type: none"> • Child Behavior Checklist • Centres for Epidemiologic Studies Depression Scale • Social Resources and Social Support Questionnaire • Interaction Behavior Questionnaire • Parenting Convergence Scale 	Stress and concerns
Sandelowski, &Barroso. 2003.	Metasynthesis of qualitative studies	56 qualitative studies. USA	Motherhood of HIV+ women	Maternal bond
Shambley-Ebron, & Boyle. 2006.	Qualitative	10 HIV+/Aids African American mothers. USA	Semi-structured interviews on mothering practises and experiences, discrimination and stigma	Mothering role Social support
Tompkins. 2007.	Quantitative	23 HIV+ and 20 HIV- parents with children aged 9 to 16. USA	<ul style="list-style-type: none"> • Medical tests • Child behaviour checklist • Youth self-report • Teacher report form • Child depression inventory • Revised children's manifest anxiety scale • Self-perception profile for children 	Maternal bond
Wilson. 2007.	Qualitative	12 HIV+ mothers. Scotland	Semi-structured interviews on inter-relationship sources of identity	Mothering role

Table 3: Summary of articles on psychosis and parenting (n = 14)

Author and year	Design	Sample size and origin	Instruments or main themes of literature review	Themes relevant to review
Berry, Barrowclough, & Wearden. 2008.	Quantitative	96 patients with psychosis. UK	Psychosis Attachment Measure	Attachment representation
D'Angelo. 1986.	Quantitative	15 Infants with schizophrenic mothers, 15 depressed mothers and 15 unaffected mothers. USA	<ul style="list-style-type: none"> •Strange Situation Procedure •Behaviour subscale of the Community Adaptation Schedule •DSM-III criteria for schizophrenia 	Attachment representation
Duncan, & Browning. 2009.	Qualitative	23 children raised by parents with schizophrenia. New Zealand	Semi-structured interview on adult attachment	Attachment representation
Howard, & Underdown. 2011.	Literature review	Papers. Number unknown. Germany	Needs of parents with severe mental illness	Stigma Social relations and support
Jungbauer, Stelling, & Kuhn Lenz. 2010.	Qualitative	26 schizophrenia patients with young children. Germany	Interviews on the experience of parenthood	Mothering role Social relations and support
Kuhn, & Lenz, 2008.	Quantitative & qualitative	10 children age 8 to 13 who live with parents with schizophrenia. Germany	<ul style="list-style-type: none"> •Interviews on illness related experiences of burden and coping strategies •SVF-KJ 	Stress and concerns Social relations and support

Melle, & Johansen. 2002.	Literature review	Number of studies not stated. Norway	The child's experience with a mother with schizophrenia	Stress and concerns Social relations and support
Pawlby, Fernyhough, Meins, Pariante, Seneviratne, & Bentall, 2010.	Quantitative	15 mothers with schizophrenia, 23 with depression, 12 with mania and 49 healthy dyads. UK	Coding of behaviour	Parental behaviour
Wan, & Green. 2009.	Literature review	Number of studies not stated. UK	Mothers with depression and psychotic disorder	Attachment representation
Wan, Moulton, & Abel. 2008.	Literature review	9 empirical studies. UK	Parenting interventions in mothers with mental disorders	Sensitivity and responsiveness Mothering role
Wan, Penketh, Salmon, & Abel. 2008.	Qualitative	14 mothers with schizophrenia, 8 with bipolar disorder, 25 with depressive disorder, 2 with personality disorder and 1 with OCD. UK	Characteristics of mothers from recordings of mother-infant interactions	Parental behaviour Sensitivity and responsiveness
Wan, Salmon, Riordan, Appleby, Webb, & Abel. 2007.	Quantitative	13 mothers with schizophrenia, 14 with bipolar disorder and 11 with depressive disorder. UK	<ul style="list-style-type: none"> •The Global Ratings Scales of Mother-Infant Interaction •Coding of video recordings on maternal behaviour, infant behaviour and interaction 	Parental behaviour Sensitivity and Responsiveness

Wan, Warren, Salmon, & Abel. 2008.	Quantitative	14 mothers with schizophrenia with 31 mothers with affective disorder. UK	Analysis of videotapes on responses of schizophrenic mothers during interaction with their child	Sensitivity and responsiveness
Wan, Abel, & Green. 2008.	Literature Review	Number of studies not stated. UK	Impact of maternal schizophrenia on the development of psychopathology in offspring	Stress and concerns

Results

None of the studies focussed on the combination of HIV/AIDS, psychosis and maternal caregiving. The majority of studies reported on parenting in the context of either psychosis or HIV/AIDS; only few studies reported on HIV associated psychosis.

HIV/AIDS and psychosis

Comorbid psychotic illnesses with HIV/AIDS were reported in 0.2 to 15% of patients living with HIV (Table 1). No studies were reported from areas with high HIV+ prevalence, such as Africa or Asia. In comparison with the general population in the nations studied, where 4 in every 1000 people are treated for psychotic disorders, people living with HIV/AIDS may be up to 30 times more vulnerable for psychosis as the general population (Kirkbride et al., 2011; Perälä et al., 2007). De Ronchi et al. (2000) found that people with HIV associated psychosis were more likely to have a past history of psychiatric symptoms; a phenomenon that was confirmed by Alvarez et al. (2008) who found that of their 50 HIV positive participants, 44% had previously known psychiatric disorders. In an Ugandan study focusing on first-time psychiatric admissions, Maling, Todd, Van der Paal, Grosskurth and Kinyanda (2011) reported HIV seroprevalence of 18% (n= 272). Females, especially if older than 41 years, were most at risk as their prevalence was 30% compared to 10% for males.

At an early stage of infection the HIV virus enters the central nervous system (CNS) infecting glial cells, which may lead to symptoms of neuropsychiatric disorders (McCombe et al., 2009). Psychosis may be a primary psychiatric disturbance in HIV+ patients, but it may also be a secondary symptom of other HIV associated psychiatric illnesses.

De Ronchi et al. (2006) compared the characteristic symptoms of new-onset HIV associated psychosis to that of new-onset schizophrenia (N=22). Firstly, HIV positive

patients with psychosis had delusions that were less structured and more frequently paranoid than HIV- people with new-onset psychosis. Secondly, a lower prevalence of affective and anxious symptoms and significantly greater impairment in attention and concentration was found in the HIV+ group. Furthermore, poverty of speech, reduction of insight, lack of cooperation, thought insertion and thought withdrawal and delusional perception were mentioned. Alciati et al. (2001) compared patients with primary psychosis diagnosed before the diagnosis of HIV was made versus patients whose psychotic symptoms developed as a secondary symptom of cerebral opportunistic infections due to HIV. In the group with secondary psychosis, fluctuation of consciousness, disorientation and memory deficits were more often observed than in the group with primary psychosis. People with HIV associated psychosis performed more poorly on global cognitive measures than people with HIV and no psychosis (De Ronchi et al., 2000). However, these researchers made their assessments before Highly Active Antiretroviral Therapy was widely implemented, which has altered the course of the illness (Menezes et al., 2011).

HIV/AIDS is a risk factor in the development of psychosis, but the presence of psychotic symptoms also poses risks for HIV infection. Gray, Brewin, Noak, Wyke-Joseph and Sonik (2002) found an increased risk for people diagnosed with a psychotic illness to become infected with HIV. This was also reported in the narrative reviews of Owe-Larson, Säll, Salamon, and Allgulander (2009), and Parry, Blank, and Pithey (2007). Due to symptoms such as poor impulse control, substance abuse and impaired judgement persons with psychotic symptoms are more likely to engage in risky sexual behaviour. People with HIV and psychosis were less likely to have taken anti-retroviral treatment than HIV infected people without psychosis. They also had a higher prevalence of extra pyramidal side effects for anti-psychotic medication than patients with schizophrenia alone, making the illness less bearable and the person more likely to be non-compliant to treatment (De Ronchi et al., 2000;

Dolder et al., 2004). Thus there is a bidirectional risk associated with HIV, AIDS, and psychotic symptoms.

People living with HIV and psychotic illnesses often have additional challenges to face in their communities. Twamley et al. (2006) compared occupational functioning (work related abilities) of three population groups: unemployed people living with schizophrenia or schizoaffective disorder, unemployed people living with HIV and employed people living with HIV. They found that people with psychotic illnesses had the biggest decline in occupational functioning followed by unemployed people living with HIV as compared to employed people living with HIV. The study did not include participants who had both HIV and psychosis, but it illustrates the effect that both illnesses have on occupational functioning. Also, people with HIV and schizophrenia experience the burden of combined stigma of both illnesses (Walkup, Cramer & Yeras, 2004). Mijch et al. (2006) found that individuals with HIV and mental illnesses, including psychosis were hospitalised more often (relative risk of 5.4 for a 95% confidence interval) for psychiatric and non-psychiatric illnesses. These challenges isolate individuals from their communities.

HIV/AIDS and parenting

The overall conclusion from the literature is that multiple variables determine the mother-child relationship after the diagnosis of HIV. Both detrimental and beneficial factors have been identified.

The theme of motherhood and parenting featured in five studies (Table 2). Wilson (2007) found that the identity of being a mother to a care dependent child was a vital motivation for women for trying to stay alive as long as possible despite the adversities inherent to living with HIV. Furthermore, the likelihood of death increased participants' motivation to transfer their traditional and cultural values to their child (Shambley-Ebron,

2006). Sandelowski and Barroso (2003) found that in some instances motherhood creates a paradox by intensifying or mitigating negative social and physical effects. Although children are a source of hope, esteem and motivation, they also pose a risk of disclosing maternal HIV-status and emphasize her impaired capacity to mothering which may lead to relational problems. Shambley-Ebron (2006) noted feelings of impotence and guilt in the discourse of mothers, as they thought about their children becoming orphans. In spite of these challenges, mothers invested in their children and helped them to create mementos for after their death.

The impact of HIV on the maternal bond was also addressed. Lester et al. (2011) found that due to emotional distress associated with living with HIV, family functioning was more impaired in HIV+ families than in HIV- families. High levels of emotional distress and aggression during mother-child conflicts were related to adolescents from mothers living with HIV. Yet children of mothers living with HIV were more protective of their mothers than the control group, and tried to lessen their mothers' burden by keeping their own problems to themselves. McKee et al. (2007) reported that positive mother-child relationships had a protective effect against this risk of depressive symptoms in children, more than children's coping skills were. In situations where parentification involves increased emotional closeness, responsibility of household maintenance increased promoting positive parenting and child adjustment (Tompkins, 2007). Children described their mothers as warm and accepting and their parent-child relationships as positive (Bursch, Lester, Jiang, Rotheram-Borus & Weiss, 2011). Jones, Foster, Zalot, Chester, and King (2007) found that the quality of this relationship moderated the association between children's knowledge of the mother's HIV-status and externalising difficulties.

Sandelowski and Barroso (2003) found in their metasummary that motherhood encouraged women living with HIV to seek social support. As they planned for their

children's futures, social support was utilised in order to ensure respite care during their hospitalization. Maternal social support led to decreased HIV associated stressors and emotional distress, which enhances active meaning-making coping and ultimately the quality of parent-child relationships. Maternal stressors associated with HIV also predicted more child adjustment problems (Hough, Brumitt, Templin, Saltz, & Mood, 2003). Ndlovu, Ion, and Carvalhal (2010) found that social support was the most frequently used strategy for coping with stressors after being diagnosed with HIV and was associated with less stress related to child rearing and housing. Due to the small sample size, these results should be interpreted with caution. Nöstlinger, Bartoli, Gordillo, Roberfroid, and Colebunders (2006) reported that healthy family functioning was negatively associated with children's perceived behavioural symptoms and that children's coping and resilience were associated with strong family cohesion.

According to Ndlovu et al. (2010) and Nelms (2005) the responsibilities of being a parent may encourage help seeking behaviour, but may also lead to worries and stress. Housing and placement may be a concern for mothers in planning and securing their children's futures. Interviews with HIV+ mothers revealed that thinking of their children becoming orphans led to feelings of guilt, sadness, and psychological anguish (Hebling & Hardy, 2010). Fears of transmitting the virus to children, concern and intrapsychological conflict about disclosure to children add to the burden (Crews, Patrick, Achim, Everall & Masliah, 2009; Kennedy et al. 2010). These mothers turned to their families for support and for safeguarding a place to stay for their children (Antle et al., 2001). The situation of families with an HIV-infected parent is exacerbated by poor economic conditions and financial burden placed on the family and the HIV+ mother (Antle et al. 2001; Ji, Li, Lin & Sun, 2007). Murphy et al. (2010) studied adolescents affected by maternal HIV and concluded that concerns and stressors may impact negatively on parenting. Being anxious

about one's own health and functioning is associated with poorer parenting skills as well as poorer parent-child communication, and less consistent parenting discipline. Passive coping, according to Hough et al. (2003), is associated with maternal distress and weakening of the mother-child relationship. In addition, children and adolescents appeared to respond to maternal distress with behaviour problems, risk behaviour and aggressive conflict resolution styles (Lester et al., 2011; Murphy et al., 2010).

Among the major hardships of living with HIV/AIDS are physical illness and hospitalisation. Mothers with HIV reported that they were missing out on important events (e.g. daily activities and major school and extra-curricular activities) in their children's lives because of the illness and hospitalisation (Murphy, Roberts, & Herbeck, 2011). Impairment in predictable family routine and good parental monitoring due to parental illness correlated strongly with aggressive behaviour, depressive symptoms, anxiety, binge drinking, and conduct disorder behaviour (Murphy, Marelich, Herbeck, & Payne, 2009). Mellins, Brackis-Cott, Dolezal, Leu, Valentin and Meyer-Bahlburg (2008) found that children's knowledge of the mother's HIV status together with the mother's general health predicted worse mental health outcomes for these children. In situations where HIV+ mothers are supposed to feel shame, are less integrated into the community resulting in poorer support, and have less chances of employment and ways to keep their children's health and nutrition in good order (Ji et al., 2007).

Psychosis and parenting

Of the 14 included studies, ten focused on schizophrenia as opposed to other illnesses with psychotic symptoms (see Table 3). Many schizophrenic symptoms overlap with that of HIV associated psychosis.

Wan, Moulton, and Abel (2008c) pointed out in their review on primary psychotic disorders such as schizophrenia that one of the distinct characteristics of suffering from psychosis is a decreased capacity for theory of mind and poor mentalization. Being able to see the world from a child's point of view and being empathic are important components of good parenting. Therefore, poor mentalization in parents suffering from psychotic disorders puts their children at risk (Wan, Abel, & Green, 2008a).

Wan et al. (2008c) and Wan et al. (2008a) reported that mothers with schizophrenia had more specific and additional needs, were more likely to experience relational difficulties and were less likely to have a partner than mothers with other mental disorders. They tended to be withdrawn and were more self-absorbed. These factors make it more difficult to develop social relationships and support networks.

Wan, Salmon, Riordan, Appleby, Webb, and Abel (2007) compared mother-child dyads with schizophrenia, bipolar disorders and depressive disorders to determine what predicts poor mother-infant interaction. They found that mothers with schizophrenia were less responsive to their infants, especially during withdrawn episodes. Infants responded to these behaviour changes in their mothers by becoming avoidant of their mothers. Wan et al. (2008d) compared responsiveness to infants of schizophrenic mothers to that of mothers with affective disorders. Wan et al. (2008b) compared content and style of speech of schizophrenic mothers to mothers with other psychiatric diagnoses. Mothers with schizophrenia responded with negative responses to positive behaviour in the infants, and responded with abnormal behaviour and psychological withdrawal. Mothers' speech was less infant-focused and they used less songs and rhymes during their interactions.

Attachment theory emphasizes the importance of caregiver sensitivity and appropriate responsiveness towards infants as shaping the organization of infants' attachment behaviour

in the relationship with that caregiver, as well as influencing expectations and behaviours in other relationships (Bowlby, 1969). The blunted affect, alogia, and withdrawal observed among mothers with schizophrenia is bound to lead to lower maternal sensitive responsiveness towards infants (Wan et al., 2008b; Wan et al., 2008d; Wan et al., 2007) and present a chronic burden on children (Melle & Johansen, 2002).

D'Angelo (1986) directly compared attachment relationships of infants with schizophrenic mothers to those with depressed and unaffected mothers. Insecure attachment was significantly more prevalent among children of mothers with schizophrenia. The research was conducted before Main and Solomon (1990) developed the classification of disorganized attachment relationships. Based on the findings of Wan and Green (2009) there appears to be an association between severe psychopathology in mothers and disorganised infant attachment. Duncan and Browning (2009) measured the attachment representations of adult children with parents suffering from schizophrenia. They displayed a variety of attachment problems in their relationships with partners, relating to insecure mental representations of their attachment experiences with their parents. Problems relating to trust and intimacy were common. Berry, Barrowclough and Wearden (2008) found that avoidant attachment was positively associated with positive symptoms of psychosis, negative symptoms and paranoia. They also found associations between avoidant attachment and interpersonal problems leading to withdrawing behaviour among parents in times of distress when social support is most needed.

A main theme that arose in a study with parents suffering from schizophrenia was that the majority of parents with psychotic disorders were aware of their restrictions with regards to parenting competence and their need for parenting support, yet many were sceptical and hostile with regard to offers for help with taking care of the children (Jungbauer, Stelling, Kuhn & Lenz, 2010). Many parents feared that reaching out to others in times of need may

result in losing their children (or custody of their children) and children avoided seeking help out of loyalty to their parents (Howard & Underdown, 2011; Jungbauer, Stelling, Kuhn & Lenz, 2010; Melle & Johansen, 2002; Wan et al., 2008c).

Discussion

The aim of this systematic review was to analyse evidence regarding linkages between HIV/AIDS, psychosis and parenting. The literature on HIV infection and parenting and on psychotic disorders and parents showed overlapping as well as unique parenting risks as well as some resilience factors. Evidence for heightened comorbidity of HIV/AIDS and psychotic disorders is also reported in the literature, although the evidence is still scattered. Given the accumulation of risk, the consequences of comorbid HIV/AIDS and psychotic disorders for parenting and children's outcomes are bound to be severe, but direct empirical evidence is not yet available. Maternal HIV/AIDS has the potential to affect parenting outcomes negatively or positively, depending on the individual context. In the case of HIV related psychosis, the underlying mechanisms may lead to more negative outcomes.

Studies in both groups (HIV/AIDS and parenting, and psychosis and parenting) identified unique risk factors associated with the individual illnesses and even though some of the risk factors overlapped (e.g. stigma), the presentation and experiences differed. When an individual thus faces the comorbidity of HIV/AIDS and a psychotic disorder, the combined risk factors of both illnesses may be expected. This firstly implies that clinicians working with HIV infected people should be sensitive for the development of psychotic symptoms, and secondly that those working in psychiatric settings where patients have an elevated risk for HIV infection, alert themselves to the detrimental outcomes for child rearing and parenting. Support figures such as family members may need to play a bigger role in the upbringing of the child in such a situation. More insight is needed in the attachment

relationship of the child with a mother with HIV/AIDS and psychosis. Another important issue for future research may be to explore the needs of affected mothers and their support figures.

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