Global Scientific JOURNALS

GSJ: Volume 7, Issue 3, March 2019, Online: ISSN 2320-9186
www.globalscientificjournal.com

# COMORBID DEPRESSIVE & ANXIETY DISORDERS AMONG HIV INFECTED MOTHERS AND IMPLICATIONS ON THEIR CHILDREN'S SOCIO-EMOTIONAL DEVELOPMENT IN KIBRA SLUMS

Sylvia Raywe Sijenyi , Anne Obondo[2], Caleb Othieno[2], David Bukusi[3]

[1]*Msc. Clinical Psychology & PHD Candidate University of Nairobi*
[2]*Associate Professor Department of Psychiatry University of Nairobi*
[2]*Associate Professor Department of Psychiatry University of Nairobi*
[3]*Voluntary Counselling HIV and Testing Unit Manager Kenyatta National Hospital*



## Abstract

***Introduction:*** Mental health and HIV/AIDS have been closely interlinked. Some of the neurological or mental disorders that are commonly linked to HIV/AIDS globally are depression and anxiety and their comorbidity. This comorbidity which is more prevalent among women can consequently impact the relationship between a mother and her child especially with regards to the social-emotional development of the child which is linked to general well being and adaptive adjustment in adulthood. Unfortunately, studies looking into this relationship are scarce, hence this study addresses this gap.

***Methods:*** This was a cross-sectional study undertaken at the Kibra South clinic situated in Nairobi County in Kenya. The target population was HIV positive mothers with children between the age of 24 and 36 months. Systematic sampling was used to get 185 respondents. Instruments adopted for the study were: a researcher designed socio-demographic questionnaire, Becks Depression Inventory, Becks Anxiety Inventory, and Brief Infant and Toddler Social Emotional Assessment for 0 and 36months.

***Results:*** There was no association between comorbid depression and anxiety in HIV infected mothers and child's emotional development problems at a P=0.672. However, there was a negative linear relationship between the competence deficit component of socio-emotional development and BDI scores (depression) {$r$ = -.154, $p$ =. 0.037}.

***Conclusion****:* Though the comorbidity in the mothers did not directly have an impact on children's socio-emotional development, depression was found to increase the chances that a child would have competence delays or deficits.

**Key words:** *Comorbid Depression & Anxiety, Socio-Emotional Development, Competence*

# Introduction

Studies on the neuro- psychiatric disorders that emerge as a consequence of HIV infection have generally linked the illness to poor mental health (Nishanth & Prabha, 2010; Jallow, Ljunggren, Wandell, Wahlstrom, & Carlsson, 2017). These psychiatric disorders have been documented to range from cognitive deficits that could be minor, to transient or acute psychosis (Thakur, Anand, & Sagar, 1992). However, studies from the early 2000 to date show that depressive and anxiety disorders tend to be more prevalent among HIV infected persons (Ironson, O'Cleirigh, Fletcher et al., 2005; Chander, Himelhoch, & Moore, 2006; Chandra, et al., 2006; Bradley, et al., 2012). Besides the fact that these disorders independently have consistently been associated with negative HIV-related behaviors, particularly poor ART adherence; in cases where they are comorbid, they have also been associated with dire psychiatric outcomes such AIDS related psychosis(Ironson, O'Cleirigh, Fletcher et al., 2005).

With regards to how prevalent the comorbidity is, HIV aside, Epkins & Heckler (2011), found that depressive and anxiety disorders commonly occur together in patients presenting in the primary care setting and therefore a patient presenting with one disorder probably also suffers from the other disorder( Kurz & Hesselbrock, 2006; Aboge, et al., 2014). This is mainly attributed to the fact that they share similar risk and protective factors.

Generally HIV infected patients with comorbid depression and anxiety appear to have a significantly greater burden of illness. These patients also have worse response to medication or therapy and a more chronic course of illness than patients with depression alone. Some of the anxiety disorders that are present in HIV- infected patients include panic disorder, generalized anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder (Vitiello, Burnam, Bing, & al, 2003). According Bradley et al.(2012), the comorbidity has been largely associated with the HIV sero- positivity among the women which is the primary focus of this study.

Researchers in Mexico conducted a study to determine the prevalence of depression and anxiety but looked at incidence in both women and men. The study established that women were more affected by both depression and anxiety. However, it is also important to note that the sample size of women who participated in the study was only 38 out of 291 PLWHA therefore it could be stated that the significant level was statistical noise. Regardless, the study affirmed what other studies have been reporting and concluded that women are more prone to suffer from depression and anxiety. The Becks Depression Inventory and Becks Anxiety Inventory were used for this study (Caballero-Suárez, et al., 2017).

In a another study done to determine the prevalence of co-morbid depression and anxiety among HIV patients at Alert Hospital, Addis Ababa, Ethiopia; it was established that 24.5% of the respondents who were 307 in total were suffering from the comorbidity. The study concluded that having perceived HIV stigma, HIV Stage III, poor social support and poor medication adherence were associated with depression while being female, being divorced and having comorbid TB and perceived HIV stigma were associated with anxiety. However, it was generally noted that women were mostly affected with the comorbidity (Tesfaw, et al., 2016).

In Tanzania, a study done to assess the prevalence of depression at ARV therapy initiation and clinical outcomes among a cohort of women living with HIV, it was reported that at initiation of ARVs the number of women who had depression symptoms were 57%. This was associated with increased risk of mortality [hazard ratio (HR): 1.92; 95% confidence interval (CI): 1.15–3.20; $P$=0.01] and incidence of severe anemia (hemoglobin <8.5 g/dl; HR: 1.59; 95% CI: 1.07–2.37; $P$=0.02). The study assumption of causality was estimated at 36.1% (95% CI: 13.6–55.1%) of deaths among the study cohort to attributable to depression and its consequences. However, the study doesn't clarify or indicate their findings regarding anxiety or comorbidity (Sudfeld, et al., 2017). It's important to note that no recent study has been published from Kenya with related data about prevalence of comorbid depression and anxiety among women living with HIV. Therefore there is no study on the impact of the comorbidity in these women and especially its impact on their ability to provide emotional needs and care to their children

The importance of socio-emotional well-being of a child cannot be over emphasized because it is linked to general well- being in children and adaptive adjustment as they become adults (Page, Page, & Page, 2007). Basically, a child's socio-emotional well being which is established through a nurturing relationship is important to their overall health, development and well being (AIHW 2012). It has been established that children who have high levels of socio-emotional well-being grow into caring, emotionally healthy adults. There are also more capable of negotiating challenges which might be physical, intellectual or social during their childhood and adolescence stages of development (Yates, et al., 2008).

A child's ability to understand emotions, initiate and maintaining secure relationships are very integral aspects of early socio-emotional functioning. It is important to note that emotional learning begins very early in life and this is because children start to encounter and deal with many different emotions as they grow. Actually, early socio-emotional development is defined as the ability of young children to form close and secure adult and peer relationships, experience, regulate and express emotions in socially and culturally appropriate ways; it also involves their ability to explore the environment and learn; all in the context of the community and culture (Yates, et al., 2008). Every stage of a child's development entails different socio-emotional developmental milestones and skills (Saarni, 2011). Some of these skills which are commonly referred to as foundational social and emotional skills and characteristics are emotion expression and management, perspective taking, empathy, inhibitory control, self confidence and the ability to develop and support relationship with others ( Yoder, 2014).

For these expected milestones to be achieved, mother to child relationship should be affectionate because the social and emotional development of an infant and toddlers depend on the nature of this particularly interpersonal social interaction. It is, therefore, justifiable that research has found links between maternal mental health to impaired parenting (Lee,Anderson,Horowitz & August, 2009 & White, Roosa, Weaver & Nair, 2009). Earlier studies show that this link is further extended to the occurrence of emotional incompetence, poor child behavioral and cognitive outcomes especially among low-income families (Jackson, Brooks-Gunn, Huang & Glassman, 2000,Petterson & Albers, 2001).

Studies have established that responsive caregiving helps children to regulate their emotions; this, in turn, helps them develop predictability, responsiveness and safety in their social environments. According to Shonkoff (2004), relationships that are nurturing and consistent in

early years are the key to better outcomes for children as they develop. Hence, parents and caregivers do play a very important role in their children's healthy development.

However, Catz, Gore- Felton, McClure (2002) and later WHO (2008), observed that women who were infected with HIV exhibited a high level of depression, stress and anxiety which was associated with less social support for their children. These mothers were found to have difficulty showing affection, patience, playfulness towards their children. They were also found to be very self-critical and not capable of making decisions. All these traits were found to adversely affect the emotional development of their children. Page, Page, & Page (2007), also found that the effect of this comorbidity in mothers has far- reaching implication and this is because it can have serious negative consequences to the relationship between a mother and her child and hence poor socio-emotional development of the child

Other pre and postnatal mechanism that have been looked at with regards to this comorbidity and its link to impaired child's emotional development are for example; parenting and negative maternal cognitions (Pawlby et al., 2011), maladaptive and increased interpersonal stress of the mother (Barker, 2012) and the degree to which depression and anxiety can alter the intra-uterine environment, and hence affect fetal development. For example, depression is reported to be associated with higher levels of circulating cortisol, which can affect the development of the biological stress system of a child. (Goodman, et al., 2011, Field, et al., 2010). As mentioned, there is a paucity of data on the effect of depression and comorbid anxiety impact on the emotional development in Kenya.

Basically, Poor maternal mental health has been found to be a risk factor for poor socio-emotional development among infants (Rahman, Patel, Maselko& Kirkwood, 2008) especially with regards to the development of insecure- anxious attachment which affects others aspects of a child's well -being as they develop. It has been suggested that parent -child attachment, parent-child conversation and parenting style in general, all have an effect on a child's emotional understanding, their self concept development, temperament, self confidence and self esteem. Theories such as functionalist and dynamical system theories have been suggested to explain this phenomenon.

Bowlby's and Ainsworth theories of secure attachments have also been promulgated to explain the relationship between a mother and child and more importantly its implication on a child socio-emotional development (Bowlby, 1988 & Ainsworth, et al., 1978). Nevertheless, it has been postulated that maladjustment in the social and emotional domain may derail or impede children's ability to function in family, school or other contexts in contrast to children with good social emotional development hence having greater self control (part of self regulation) are generally more likely to grow into adults with better health, better socio-economic status and fewer forensic concerns (Moffitt, et al., 2011).

The assumption of this study was that in cases where the mother is HIV -infected and suffering from comorbid depressive and anxiety disorder; the socio-emotional development in early childhood would be adversely affected. Implications being deficits in socio-emotional competence where the child may not develop effective affect- oriented cognitive, behavioral and regulatory skills that are expected to emerge as they grow. Therefore, this study mainly aims to

establish the link between comorbid depression and anxiety and negative emotional development in children with HIV- infected mothers. Due to the paucity of data in this area from Kenya, this study also attempts to fill that gap in research in Kenya.

# Methods

### *Study Design*

The study adopted a descriptive (cross-sectional) research design to assess the implication of comorbid depression & anxiety among HIV -infected mothers on their children's socio-emotional development.

### *Specific study site*

This study was carried out at the Kibra South clinic in Nairobi County

### *Study Instruments*

The Becks Depression Inventory and Becks Anxiety Inventory were used to determine participants' level of depression and anxiety respectively. The Brief Infant Toddler Socio-Emotional Development Assessment tool was used to determine competency deficits and behavioral difficulties in children. This tool is based on the parent's perception of the children's development and behavior. It covers both behavioral problems (for example excessive aggressive behavior, sadness, fear and deviant behaviors such as self injurious movements, odd posturing etc. that have become excessive in intensity and frequency; and competencies deficits or delays aspect of socio-problems (e.g. level of attention, compliance, mastery motivation, pro-social peer relation, empathy, imitation/ play skills and social relatedness). A socio-demographic questionnaire was also used.

### Study Procedure

Permission to conduct the study was obtained from the institution review board before data collection. Approval from the Nairobi county government and South Kibra clinic administration was also obtained first before embarking on the research. All participants signed consent forms before participation. The questionnaires were researcher administered. The BITSEA was translated and back translated to Kiswahili and then piloted to ensure validity of information gathered for easy administration by researcher in some cases as it had never been used in Africa.

### Study Population

The study targeted HIV positive mothers with children between the age of 24 and 36 that were previously attending the PMTCT (prevention of the mother to child transmission) clinic and currently bringing in their children either for vaccination or regular check up at the clinic. This is because the study focuses on socio-emotional growth from infancy to toddlerhood. At this stage, children's development unfolds in an interpersonal context and particularly their relationship

between them and their caregiver or nurturing adults. At this stage the children are also attuned to social and emotional stimulation.

The Inclusion criteria were HIV positive mothers adherent to their medication _(*this was important to ensure that the participants had lower chances of suffering from Brain encephalopathy associated with HIV/AIDS which can worsen symptoms of depression and make a mother either exaggerate or extremely minimize symptoms in a child (with regards to social emotional problems)*

Exclusion criteria were HIV- positive mothers who were too sick to participate in the study or suffering from current febrile illness and HIV -positive mothers who had children that are below the age of 2years

**Sampling**

Systematic sampling was used to get 185 respondents\

**Analysis**

Quantitative statistical analysis was done using Statistical Package for Social Sciences (SPSS) version 23. Cramer's V and Pearson's correlation were used to show correlation between variables while chi-square was used to show association between the variables.

**Ethical Consideration**

The approval from the institutional review board and all necessary authorities were sought and obtained. All the participants were briefed on the nature of the study and the necessary instructions, study objectives, risks and participant rights. Each participant was presented with a written informed consent form which they signed before enrolment into the study. Participants were assured that participation was entirely on voluntary basis and also made aware that they can withdraw from the study if they felt uncomfortable to continue and no penalties or victimization will result. If respondents were found to be suffering from moderate to severe emotional distress or the disorders (depression, Anxiety or the comorbidity) then referral for psychiatric evaluation was done where they could be put on anti depressants or anxiolytics.

# Results

***Socio Demographic Profiles***

The mean age of the respondents was 31.13yrs (SD. ±6.641), the mode was 30yrs and the median 30yrs.
Forty three point two percent (43.2% (80)) were married while 24.3% (45) were single or never married and 20.5% (38) were separated, and 10.8% (20) were widowed. Only 2 respondents were divorced. Thirty eight point four percent (38.4% (71)) of the respondents had reached primary school, 31.9% (59) had attained secondary school education, and 18.9 % (35) had been to college. One point 1 percent (1.1 % (2)) had attained university education and had completed undergraduate degree courses. Finally, 9.7 % (18) had no formal education.

Majority 81.6% (151), indicated that they worked outside the home while 54.1 %( 100) of them indicated that they worked part time.
The average salary of the respondents was Kshs. 9684.24 (SD. ±5452.259), the mode was Kshs. 5000 and the median Kshs. 8100. Most of the respondents indicated that they had 2 children. The mean was 2.72(SD±1.373) while the median was 2.

***Depression among the HIV -Positive Mothers Attending the Kibra South Clinic***

**Becks depression Inventory Scores & Severity of Depression**

Becks depression Inventory was used to determine the level of depression among the respondents. The mean score was 14.18 (SD. ±8.972), the mode was 9 and the median was 11.0. 20.0% (37) scored between14-20 which meant that they had mild depression. Eighteen point nine percent (18.9% (35)) had scores ranging from 21 -29 and this meant that they were suffering from moderate depression. Six point five percent (6.5% (12)) of them had severe depression with scores from 30 and above. Fifty four point six percent (54.6% (101)) of the respondents had scored between 0-13 implying that they had no depression.

**Prevalence rates of Depression**

The prevalence rate of depression was determined by considering mild to severe depression. The findings show that the prevalence of depression was 45.4% (see Table 1).

**Table 1:** ***Prevalence of Depression***

| | Frequency (N=185) | Percentage (%=100) |
|---|---|---|
| Depression | 84 | 45.4 |
| No depression | 101 | 54.6 |
| Total | 185 | 100.0 |



**Anxiety among the HIV -Positive Mothers Attending the Kibra South Clinic**

***Becks Anxiety Inventory Scores & Severity of Anxiety***

Becks Anxiety Inventory was used to determine the level of anxiety among the respondents. The mean score was 24.93 (SD. ±16.836), the mode was 6 and the median was 27. 30.3% (56) had scores starting from 36 implying that they suffered from severe anxiety. Forty two point seven percent (42.7% (79)) of the respondents had scores between 0-21 implying that they had low anxiety and not clinically significant depression. Twenty seven percent (27.0% (50)) scored between 22-35 signifying that they had moderate anxiety.

**Prevalence rate of Anxiety**

The prevalence rate of anxiety was determined by summation of the number of respondents diagnosed with moderate to severe anxiety. The findings show that the prevalence of anxiety was 57.3% (see Fig 1).

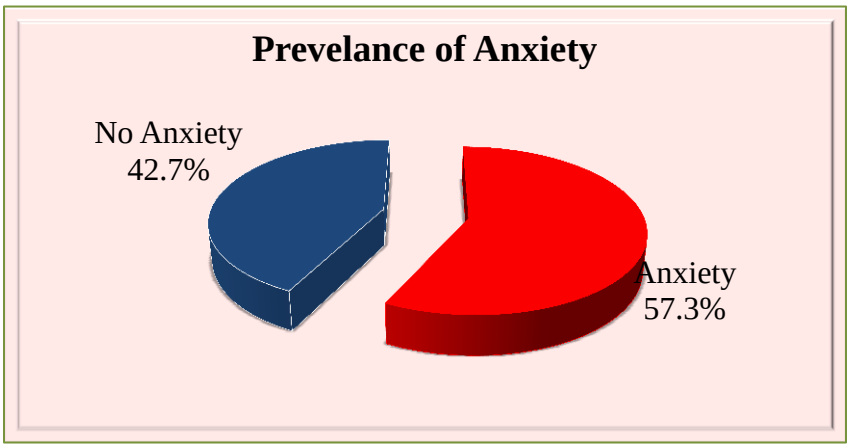


***Figure 1: Prevalence of Anxiety***

**Prevalence of comorbid Depression & Anxiety among the HIV -Positive Mothers Attending the Kibra South Clinic**

The prevalence rate of comorbid depression and anxiety was determined by considering respondents who had been found to have both depression and anxiety which was 38.4% (71) (see table 2).

***Table 2: Prevalence of comorbid Depression & Anxiety***

| Comorbid Depression & Anxiety | Frequency (N=185) | Percentage (%=100) |
|---|---|---|
| No | 114 | 61.6 |
| Yes | 71 | 38.4 |
| Total | 185 | 100.0 |

**Gender & Age Category of the Children**

185 children accompanied their parents; Girls were more than boys at 53% (98) and most of them were between the ages of 30 to 36 months; 56.2% (104).

**Table 3: Gender & Age of the Children**

| Variable | | Outcome 185/100% | |
|---|---|---|---|
| | | Frequency (n) | Percentage (%) |
| Gender | Boy | 87 | 47.0% |
| | Girls | 98 | 53.0% |
| Age | 24-29 Months | 81 | 43.8% |
| | 30-36 Months | 104 | 56.2% |

### Levels of Socio-Emotional Development using the Brief Infant -Toddler Socio-emotional development Assessment (BITSEA)

14.1% of the children had behavioral problems, 5.9% had competencies deficits and delays and 18.4% had both difficulties (see Table 4).

**Table 4: Levels of Socio-Emotional Development (Based on Percentile Ranking)**

| | Frequency (N=185) | Percentage (%=100) |
|---|---|---|
| SE/ Behavioral Problems | 26 | 14.1 |
| SE/ Competencies Deficits/Delays | 11 | 5.9 |
| Both Behavioral & Competency Deficits | 34 | 18.4 |
| No SE Problem | 114 | 61.6 |
| Total | 185 | 100.0 |

### Overall Prevalence of Socio-Emotional Development using the Brief Infant -Toddler Socio-emotional development Assessment (BITSEA)

The prevalence rate was 38.9% (72). The prevalence of Socio-Emotional Development Problems was determined by considering the summation of all the children with percentile rankings from 14% and below. This was determined by the parents scores based on their perception of their children behaviors and social abilities(competences). 52.8% of the children found to be having socio-emotional problems were male.

### Association between a Mother's Comorbid Depression & Anxiety and Child's Socio-Emotional Development Problems

There was no significant association between comorbid depression and anxiety among the mothers and the socio-emotional development among the children at a P=0.672(See Table 5).

**Table 5: Comorbid Depression & Anxiety and Socio-Emotional Development In Children**

| Variable | | Socio-Emotional Development In Children | | Chi-Square |
|---|---|---|---|---|
| | | Yes | No | (P Value) |
| Comorbid Depression & Anxiety | Yes | 29(15.7%) | 42(22.7%) | ***0.672*** |
| | No | 43(23.2%) | 71(38.4%) | |

### Correlation between Comorbid Depression & Anxiety and Socio-Emotional Problems in Children

There was a negative linear relationship between the competence deficit component of socio-emotional development and BDI scores(depression). Meaning as the mother's depression scores went up, the competence scores of their children became lower ( as severity of depression increased, the child was more likely to have competence delays or deficits)(see Table 6).

**Table 6: Pearson Correlation statistics showing relationship between variables**

| | | Competence D/D Percentile Rank | BAI Scores | BDI scores |
|---|---|---|---|---|
| Competence delay/deficits Percentile Rank | Pearson Correlation | 1 | | |
| | Sig. (2-tailed) | | | |
| | N | 185 | | |
| BAI Scores | Pearson Correlation | -.039 | | |
| | Sig. (2-tailed) | .602 | | |
| | N | 185 | | |
| BDI scores | Pearson Correlation | -.154* | .634** | |
| | Sig. (2-tailed) | .037 | .000 | |
| | N | 185 | 185 | |
| Behavioral Problems Percentile Rank | Pearson Correlation | .563** | -.011 | -.066 |
| | Sig. (2-tailed) | .000 | .885 | .371 |
| | N | 185 | 185 | 185 |

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

# Discussion

The prevalance rate of comorbid depression among the HIV infected mothers at the Kibra South Clinic was found to be 38.4% and overall, the study found that 38.9% of the children were having social emotional problems. Fourteen point one percent (14.1%) of the children were found to be having socio-emotional behavioral problems, 5.9% were reported as having socio-emotional competencies deficits or delays and 5.9% of the children were found to be having both behavioral and competencies delays and deficits. In a previous study that was done in the United states, it was reported that between 30 and 50% of children who had parents with psychiatric disorders were most likely to be having socio-emotional problems or psychiatric diagnosis (Hammen, 2003). This prevalence could also be explained by the fact that these children came from families with low socio-economic backgrounds, which is generally associated with these problems(Knapp, Ammen, Arstein-Kerslake, Poulsen, & Mastergeorge, 2007).

Although some published studies on socio-emotional development have not entirely focused on both aspects of behavior and competencies deficits or delays; there are relevant findings to this current study. For example, in a comparative study that was undertaken in Myanmar among children with HIV infected parents and those that did not, it was found that children with infected parents had significant emotional problems but there was no difference in their social or conduct behaviors. The study aimed to look at psychological behaviors among these groups of children. It is however, important to note that the children being assessed were from 4 years to 16 years of age and even more importantly, the study established key mediating factors such as displacement and other social conditions as playing a major role (Myo-Myo & Tippawan, 2017).

More importantly, the study reported that there was no association between a mother having comorbid depression and anxiety and her child having socio-emotional development problems.

However, it was established that there was a relationship between a mother suffering from depression and probability of her child having socio-emotional development problems particularly competency delays or deficits { r=-154, p=0.037}. Similar to these current findings, a study that was done to determine the impact that postpartum depression had on infant social withdrawal also found that even though 31% of the children were socially withdrawn and 42% of the mothers were suffering from postpartum depression, the study reported that depression was not a predictor of infant social withdrawal (Hartley, et al., 2010). Another study that was conducted in the United States which was looking at socio-emotional development among other constructs such as cognitive development in 24 months toddlers, it was found that maternal variables such as greater parenting stress, maternal psychological distress were associated with competence delays and deficits particularly associated with autism spectrum disorders (Frederick, et al., 2018).

Other studies examining mechanisms underlying associations between maternal depression and adverse child outcomes (including behavior, socio-emotional adjustment, and emotion regulation) indicate that maternal depression does affect child outcomes (Herba, Glover,Ramchandani, Randen, 2016).

Borrowing from the concept behind Bowlby's (1988), theory of secure attachment in children or Ainsworth et al.'s, (1987) theory of attachment, the relationship between a mother and child is very important and it is reflected in many other developmental aspects of the child. However a number of studies have indicated that generally depressed mothers are less attentive and unresponsive to their children's needs (Herba, et al.,2016). They are also poor models for negative mood regulation and problem solving unlike non depressed mothers and this is mainly because depressed mothers were found to hardly set limits for their children or to even follow through once they set limits. Hence their children were reportedly more passively non-complaint, lacking age appropriate autonomy with less mature expressions. (Herba, et al.,2016). Demographic variables, such as maternal age, ethnicity, socioeconomic status, marital status, child's age and number of siblings, were also taken into account.

# Conclusion

The study concludes that there was no relationship between comorbid depression and anxiety in HIV infected mothers and child's emotional development problems. However, it reports that there is a relationship between depression (independently) and socio-emotional development problems in children particularly competency deficits. This connection is best explained by Bowlby's and Ainsworth's attachment theories which are the theoretical underpinning of this study.

The study implies that a child whose mother has depression is most likely going to have difficulty in compliance, levels of attention, mastery of motivation, pro-social peer relation, empathy, imitation/ play skills and social relatedness. The assumption is; a depressed mother who is probably unattached and inattentive to a child will not model and nature socially acceptable and adaptive behavior in the child hence the deficits. The mother is also less likely to notice if the child is having problems.

The study therefore recommends that psychological assessment and treatment of disorders be included in HIV treatment regimen. Children's socio-emotional development assessment could also be included as part of the procedures done to assess children for growth/developmental milestones or deficits. Thorough follow up for patients with these disorders should be done to ensure they receive psychosocial support through therapy and group counselling. It is however important to note that the clinic ensured that most patients were in support groups. Recommendation therefore is to incorporate cognitive behavioral therapy in the group sessions to help with mood disorder management. Finally, thorough psycho-education of the mothers on the importance of their psychological well being in relation to the impact it may have on their children's socio-emotional development is key. Mothers could be encouraged to engage in moderate exercising programs which may help with stress management.

## Acknowledgements

The author wishes to acknowledge Dr. Mboya from South Kibra Clinic and the County Government of Nairobi for allowing the study to be undertaken in the clinic. The authors also acknowledges the study participants

## References

1. Aboge, A., Obondo, A., Kathuku, D., & Kibuule, D. (2014). The Prevalence of Depressive Symptoms among Sensory and Physically Challenged Persons Living with HIV/AIDS Attending Clinics in Nyanza Province, Kenya. *Journal of Depression and Anxiety, 4*(2), 176.

2. Ainsworth, M. D., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: Assessed in the strange situation and at home.* . Hillsdale, NJ: : Lawrence Erlbaum.

3. Barker, E. (2012). The duration and timing of maternal depression as a moderator of the relationship between interpersonal stress, contextual risk and early child dysregulation. *Psychol Med*, 1-10.

4. Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development.* . New York : NY: Basic Books.

5. Bradley, N., Brian, W., Julius, A., Julie, O., Dmitry, K., & Peter, M. (2012). *Prevalence and Predictors of Major Depression in HIV-Infected Patients on Antiretroviral Therapy in Bamenda, a Semi-Urban Center in Cameroon* .

6. Briggs-Gowan, M. J., Carter, A. S., Clark, R., Augustyn, M., Mc Carthy, J., & Foed, D. J. (2010). Exposure to potentially traumatic events in early childhood: differential links to emergent psychopathology . *J Child Psychol Psychiatry, 51*(10), 1132-1140.

7. Caballero-Suárez, P. N., Rodríguez-Estrada, E., Candela-Iglesias, M., & Reyes-Terán, G. (2017). Comparison of levels of anxiety and depression between women and men living with HIV of a Mexico City clinic. *Salud Mental, 40*(1).

8. Catz, S., Gore-Felton, C., & McClure, J. (2002). Psychological distress among minority and low-income women living with HIV. *Behavioral Medicine, 28*, 53-60.

9. Chandra, P., Gandhi, C., Satishchandra, P., Kamat, A., Desai, A., & Ravi, V. (2006). Quality of life in HIV subtype C infection among asymptomatic subjects and its association with CD4 counts and viral loads: A study from South India. . *Qual Life Res.*, 15:1597–605. .

10. Epkins, C., & Heckler, D. (2011). Integrating etiological models of social anxiety and depression in youth: Evidence for a cumulative interpersonal risk model. *Clinical Child and Family Psychology Review. , 14*, 329-76.

11. Field, T., Diego, M., Hernandez-Reif, M., Figueiredo, B., Deeds, O, & Ascencio, A. (2010). comorbid depression & anxiety effects on pregancy neonatal outcomes . *Infant Beh. Develop.*, 332:23-9.

12. Frederick, B., Graff, J. C., Jones, T. L., Murphy, L. E., Keisling, B. L., Whitaker, T. M., . . . Tylavsky, F. (2018). Socio-demographic, maternal, and child indicators of socioemotional problems in 2-year-old children: A cohort study Palmer, . *Medicine*, 97(28) Pe 11468.

13. Goodman, S., Rouse, M., Connell, A., Broth, M., Hall, C., & Heyward, D. (2011). Maternal depression & child psychopathology: a meta analytical review. *clin child Fam psychol review*, 14-1-27.

14. Hammen, C. (2003). Risk and Protective factors of children of depressed parents. In J. Nicholson, K. Biebel, B. Hiden, A. Henry, & L. Steir, *Resilience and Vulnerability: Adaptation in the context of childhood Adversities.* New York, NY: : Cambridge University Press. .

15. Hartley, C., Pretorius, K., Mohamed, A., Laughton, B., Madhi, S., Cotton, M. F., . . . Seedat, S. (2010). Maternal postpartum depression and infant social withdrawal among human immunodeficiency virus (HIV) positivemother–infant dyads, . *Psychology, Health & Medicine,*, 15(3): 278-287,.

16. Herba, M., Glover, V., Ramchandani, G., & Randen, B. (2016). Maternal depression and mental health in early childhood: an examination of underlying mechanisms in low-income and middle-income countries. *The Lancet Psychiatry, 3*(10), 983-992.

17. Ironson, G., O'Cleirigh, C., Fletcher, M., & al, e. (2005). Psychosocial factors predict CD4 and viral load change in men and women with human immunodeficiency virus in the era of highly active antiretroviral treatment. *psychosomatic medicines*, 67:1013-1021.

18. Jackson, A., Brooks-Gunn, J., Huang, C., & Glassman, M. (2000). Single mothers in low wage jobs: Financial strain, parenting, and preschoolers' outcomes. *Child Development, 71*, 1409-1423.

19. Jallow, A., Ljunggren, G., Wandell, P., Wahlstrom, L., & Carlsson, A. (2017). HIV infection and Psychiatric Illness- A double edged sword that threatens the vision of a contained epidermic: The Greater Stockholm HIV Cohort Study. *J Infect*, 74(1): 22-28.

20. Knapp, P. E., Ammen, S., Arstein-Kerslake, C., Poulsen, M. K., & Mastergeorge, A. (2007). Feasibility of Expanding Services for Very Young Children in the Public Mental Setting. *Journal of the American Academy of Child and Adolescent Psychiatry*, 46(2): 152-1.

21. Kurz, B., & Hesselbrock, M. (2006). Ethnic differences in mental health symptomatology and mental health care utilization among WIC mothers. *Social Work in Mental Health, 4*, 1- 21.

22. Lee, C.-Y., Anderson, J., Horowitz, J., & August, G. (2009). Family income and parenting: The role of parental depression and social support. , 58, . *Family Relations, 58*, 417-430.

23. Moffitt, T., Arseneault, L., Belsky, D., Dickson, N., .Hancox, R., Harrington, H., & Caspi, A. (2011). *A gradient of childhood self-control predicts health, wealth, and public safety-Proceedings of the National Academy of Sciences of the US of America108 (7) (2011), pp. 2693-2698.* National Academy of Sciences of the US of America.

24. Myo-Myo, M., & Tippawan, L. (2017). Identification of psychological behaviours among children having parental HIV infection and their determinants in Myanmar: a comparative study with neighbourhood peers. *Vulnerable Children and Youth Studies*, Vol 12 (1): 33-45.

25. Nishanth, J., & Prabha, S. C. (2010). HIV and mental health: An overview of research from India . *Indian J Psychiatry*, 52(Suppl1): S269–S273.

26. Page, R., Page, T., & Page, R. (2007). *'Promoting health and emotional well-being in your classroom'. .* Sudbury, Mass.:: Jones and Bartlett Publishers.

27. Pawlby, S., Hay, D., Sharp, D., Waters, C., & Pariante, C. (2011). Antenatal depression and offspring psychopathology:the influence of childhood maltreatment. *Br J. paychiatry*, 199:106-12.

28. Petterson, S., & Albers, A. (2001). Effects of poverty and maternal depression on early child development. *Child Development, 72*(6), 1794-1813.

29. Rahman, A., Patel, V., Maselko, J., & Kirkwood, B. (2008). The neglected 'm' in MCH programmes—why mental health of mothers is important for child nutrition. *Trop Med Int Health*, 13:579–83.

30. Saarni, C. (2011). Emotional Development in Childhood. *Encyclopeadia on Early Childhood Development*.

31. Shonkoff, J. P. (2004). *Science, Policy and the Developing Child: Closing the Gap Between What We Know and What We Do.* Washington, DC: Washington, DC: Ounce of Prevention Fund.

32. Sudfeld, C., Kaaya, S., Gunaratna, N. S., Mugusi, F., Fawzi, W. W., Aboud, S., & Smith Fawzi, M. C. (2017). Depression at antiretroviral therapy initiation and clinical outcomes among a cohort of Tanzanian women living with HIV. *AIDS*, *31*(2), 263-271.

33. Tesfaw, G., Ayano, G., Awoke, T., Assefa, D., Birhanu, Z., Miheretie, G., & Abebe, G. (2016). Prevalence and correlates of depression and anxiety among patients with HIV on-follow up at Alert Hospital, Addis Ababa, Ethiopia. *BMC Psychiatry, 16*, 368.

34. Thakur, L., Anand, K., & Sagar, R. (1992). Neuropsychiatric and psychological aspects related to HIV infection. . *Indian J Psychiatry.*, 34:114–23.

35. Vitiello, B., Burnam, M., Bing, E., & al, e. (2003). Use of psychotropic medications among HIV-infected patients in the United States. *Am J Psychiatry*, 160:547-554.

36. White, R., Roosa, M., Weaver, S., & Nair, R. (2009). Cultural and contextual influences on parenting in Mexican American families. *Journal of Marriage and the Family, 71*, 61-79.

37. WHO. (2008). *HIV/AIDS and mental health; Report by the Secretariat* . Geneva: WHO.

38. Yates, T., Ostrosky, M. M., Cheatham, C. A., Fettig, A., Shaffer, L., & Santos, R. M. (2008). *Research synthesis on screening and assessing social-emotional competence.* Illinois: Urbana, AZ: University of Illinois, Center of the Social Emotional Foundations for Early Learning.

39. Yoder, N. (2014). *Research-to-Practice Brief Teaching the Whole ChildInstructional Practices That Support Social-Emotional Learning in Three Teacher Evaluation Frameworks Revised Edition* . Center on Great Teachers & Leaders at American Institute.