



# Predictors of Anxiety and Depression Among Caregivers of Human Immunodeficiency Virus Positive Children in Calabar, Nigeria

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## To cite this article:

Sunday Oteikwu Ochigbo, Chimaeze Torty, Oparah Sydney. Predictors of Anxiety and Depression Among Caregivers of Human Immunodeficiency Virus Positive Children in Calabar, Nigeria. *International Journal of HIV/AIDS Prevention, Education and Behavioural Science*. Vol. 4, No. 2, 2018, pp. 52-56. doi: 10.11648/j.ijhpebs.20180402.14

Received: November 20, 2018; Accepted: December 7, 2018; Published: January 11, 2019

**Abstract:** WHO ranks depression as the single largest contributor to global disability which is approximately 7.5% of all years lived with disability in 2015, anxiety disorders are ranked 6<sup>th</sup> (3.4%). Due to the chronic course of the disease, it imparts negatively on the caregivers who demonstrate high levels of psychological distress and depression, increased rates of physiological illness, personal, financial, family, and social problems. This prospective cross-sectional study was conducted from July to November 2018 at the University of Calabar Teaching Hospital, Calabar, Nigeria. A structured proforma was used to collect the baseline data which included socio-demography, relationship to the child, socioeconomic status etc. The anxiety and depression levels of these individuals were assessed using the Hospital Anxiety and Depression Scale (HADS). Sixty-four (64) parents/caregivers were interviewed who were predominantly females 79.7% with F: M ratio of 4:1. Most of the parents/caregivers had moderate grade depression and anxiety scores of 45(70.3%) and 36(56.2%) respectively. The predictors for the presence of depression were female gender, lower average monthly income and HIV status. No statistically significant predictor was identified for anxiety. The study showed that socio-demographic factors and HIV status were predictors of mental outcomes among caregivers of HIV infected children. Depression was the commonest presentation by caregivers. Clinicians should thoroughly and regularly assess mental health problems of caregivers of HIV positive children and utilize multidisciplinary approach to reduce burden on caregivers.

**Keywords:** Adherence, ART, Scale, Family, Distress, Socioeconomic

## 1. Introduction

Approximately 13.4 million children and adolescents (0-17 years) worldwide had lost one or both parents to AIDS as of 2015. More than 80% of these children live in sub-Saharan Africa [1]. Care givers of these children have been found to have an increased rate of affective and anxiety disorders [2]. WHO ranks depression as the single largest contributor to global disability which is approximately 7.5% of all years lived with disability in 2015; anxiety disorders are ranked 6<sup>th</sup> (3.4%). The prevalence of depressive and anxiety disorders are 3.9% and 2.7% respectively with total years lived with

disability as depression 7.5% and anxiety 2.6% [3] Estimates show that HIV and mental illness will be among the top ten causes of morbidity in developing countries by the year 2030 [4].

Anxiety disorders refer to a group of mental disorders characterized by feelings of anxiety and fear, including generalized anxiety disorder (GAD), panic disorder, phobias, social anxiety disorder, obsessive-compulsive disorder (OCD) and post-traumatic stress disorder (PTSD). Depressive disorders are characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration. Due

to the chronic course of the disease it imparts negatively on the caregivers who demonstrate high levels of psychological distress and depression, increased rates of physiological illness, personal, financial, family, and social problems [5-7]. In addition, the stigma, fear, shame, isolation and lack of disclosure accompanying this disease may impart negatively on the care administered to their children.

Therefore, this current study aims at assessment of anxiety and depression levels among parents and caregivers of HIV infected children in Calabar. This would provide better understanding of the challenges care givers experience at our center and advise on coping strategies.

## 2. Subjects and Method

This prospective cross-sectional study was conducted from July to November 2018 at the University of Calabar Teaching hospital, Calabar, Nigeria. This tertiary healthcare facility provides treatment and care at no cost to all HIV infected children less than 15years. An average of 3 new patients per week and a total of 10-20 children attended the thrice-weekly clinic with their parents or caregivers. Eighty-six (86) parents or caregivers willing to participate in the study were enrolled. A structured proforma was used to collect the baseline data, which included socio-demography, relationship to the child, socioeconomic status, HIV status etc. The anxiety and depression levels of these individuals were assessed using the Hospital Anxiety and Depression Scale (HADS).

The Hospital Anxiety and Depression Scale (HADS) is a self-rating scale developed by Zigmond et al in 1983 to assess levels of anxiety and depression [8]. The HADS is a highly cost effective ideal single measure of anxiety and depression, which is suitable for all ages from 17 years and above. It facilitates early identification of both anxiety and depression simultaneously whilst giving a separate score for each. It is one self-administered questionnaire based on experience over the past week. It comprises 14 relevant statements generalized anxiety (7 statements) or 'depression' (7 statements) which can be answered within 2-5mins. Each question has 4 possible responses. Responses are scored on a scale from 3 to 0. The maximum score is 21 each for both depression and anxiety. A score of 11 or higher indicates the probable presence of the mood disorder, score of 8 to 10 is borderline abnormal, while 0-7 is normal. Currently, HADS is now subdivided into four ranges: normal (0-7), mild (8-10), moderate (11-15) and severe (16-21). Ethical Clearance Certificate for the proposed study was obtained from the Health Research Ethics Committee of the University of Calabar Teaching Hospital.

Data were recorded and standard statistical analysis was performed using SPSS statistical package version 20. Continuous variables were summarized using means, median and ranges as appropriate. Proportions were compared using Chi-square test and difference between groups was determined using student t test. A probability (*P*-value) less than 0.05 was considered statistically significant.

## 3. Results

Sixty-four (64) caregivers were interviewed who were predominantly females 79.7% with F: M ratio of 4:1. Most of the respondents were mainly within the age range of 20-29years (71.9%). Majority were married 41(64%), while 9(14%) were widows but none was divorced. Twenty-nine (45.3%) of the caregivers had secondary education, closely followed by those who had tertiary education 20(31.3%). Thirty-six (56.2%) of the caregivers tested negative to HIV while 28(43.8%) tested positive. Most of the caregivers 56(87.5%) reside in the same household with their children or ward. Average age at diagnosis of children cared for was 2.8yrs (8 weeks - 11yrs) and average duration of drugs was 4yrs (1month -11.5yrs). Approximately 45.3% of the caregivers monthly income was within N5000 – N10, 000, only 8(12.5%) of the caregivers do not know their income (Table 1).

*Table 1. Caregivers socio-demographic characteristics.*

| Variables           | Frequency (N=64) | Total (%) |
|---------------------|------------------|-----------|
| Age (Years)         |                  |           |
| 20-29               | 46               | 71.9      |
| 40-49               | 17               | 26.6      |
| 50-59               | 1                | 1.5       |
| ≥ 60                | 0                | 0         |
| Sex                 |                  |           |
| Males               | 13               | 20.3      |
| Females             | 51               | 79.7      |
| Marital Status      |                  |           |
| Married             | 41               | 64        |
| Single              | 14               | 22        |
| Widow               | 9                | 14        |
| Divorced            | 0                | 0         |
| Educational level   |                  |           |
| No formal Education | 4                | 6.3       |
| Primary             | 11               | 17.1      |
| Secondary           | 29               | 45.3      |
| Tertiary            | 20               | 31.3      |
| Religion            |                  |           |
| Christians          | 64               | 100       |
| Muslims             | 0                | 0         |
| HIV status          |                  |           |
| Positive            | 36               | 56.2      |
| Negative            | 28               | 43.8      |
| Co-Residence        |                  |           |
| Yes                 | 56               | 87.5      |
| No                  | 8                | 12.5      |
| Monthly income (N)  |                  |           |
| <5000               | 11               | 17.2      |
| 5001-10,000         | 29               | 45.3      |
| 10,001 -20,000      | 6                | 9.4       |
| >20,000             | 10               | 15.6      |
| Don't know          | 8                | 12.5      |

According to the Anxiety and depression scores, most of the caregivers had moderate depression and anxiety grades of 45(70.3%) and 36(56.2%) respectively. This is followed closely by mild grade anxiety 22(34.4%) and depression 17(26.6%). No caregiver had severe anxiety or depression. (Table 2).

**Table 2.** Prevalence of Anxiety and Depression Scores.

| Scale | Grade    | Anxiety Scores | Depression Scores |
|-------|----------|----------------|-------------------|
| 0-7   | Normal   | 6(9.4%)        | 2 (3.1%)          |
| 8-10  | Mild     | 22(34.4%)      | 17(26.6%)         |
| 11-15 | Moderate | 36(56.2%)      | 45(70.3%)         |
| 16-21 | Severe   | 0(0%)          | 0 (0%)            |

The predictors for the presence of depression and anxiety revealed that having a female gender, lower average monthly income and HIV positive status were identified as predictors of presence of depression in caregivers. No predictor was identified for presence of anxiety in caregivers. (Table 3).

**Table 3.** Predictors of presence of Depression and Anxiety among Caregivers.

| Independent variables               | **Predictors of presence of depression in Caregiver | *Predictors of presence of anxiety in Caregiver |
|-------------------------------------|---|---|
|                                     | (P value)   | (P value)                                       |
| Level of Education                  | 0.104   | 0.748   |
| Distance to the hospital            | 0.608   | 0.642   |
| Age of caregiver                    | 0.569   | 0.578   |
| Age of affected child               | 0.056   | 0.286   |
| Age of child at diagnosis           | 0.178   | 0.904   |
| Average monthly income of caregiver | 0.046   | 0.753   |
| HIV status                          | 0.042   | 0.038*  |
| Duration of HAART therapy           | 0.406   | 0.246   |
| Monthly expenditure on illness      | 0.152   | 0.436   |
| Number of siblings                  | 0.599   | 0.948   |
| Category of HAART (Drug line)       | 0.848   | 0.959   |
| Gender of Caregiver (female)        | 0.005   | 0.434   |

\*\*Having a female gender, lower average monthly income and HIV status were the identified predictors of presence of depression in caregivers.

\*No predictor was identified for presence of anxiety in caregivers.

Lower level of education, older age of affected child, lower average monthly income, shorter duration of HAART therapy, higher monthly expenditure on the illness and having a greater number of siblings of the affected child,

were the identified predictors of increasing severity of depression among caregivers. No predictor was identified for increasing severity of anxiety in caregivers. (Table 4).

**Table 4.** Predictors of increasing severity of depression and Anxiety among Caregivers (regression analysis with category of depression as dependent variable).

| Independent variables               | **Predictors of increasing severity of depression in Caregiver |           | *Predictors of increasing severity of Anxiety in Caregiver |           |
|-------------------------------------|--|-----------|--|-----------|
|                                     | B-coefficient  | (P value) | B-coefficient  | (P value) |
| Level of Education                  | -0.346   | 0.019     | 0.066  | 0.724     |
| Distance to the hospital            | 0.189  | 0.098     | -0.122   | 0.403     |
| Age of caregiver                    | 0.009  | 0.947     | -0.059   | 0.722     |
| Age of affected child               | 0.222  | 0.040     | 0.161  | 0.244     |
| Age of child at diagnosis           | 0.082  | 0.453     | -0.075   | 0.595     |
| Average monthly income of caregiver | -0.431   | 0.049     | -0.001   | 0.998     |
| HIV status                          | 0.244  | 0.012     | -0.003   | 0.076*    |
| Duration of HAART therapy           | -0.348   | 0.005     | 0.021  | 0.893     |
| Monthly expenditure on illness      | 0.415  | 0.002     | 0.253  | 0.132     |
| Number of siblings                  | 0.373  | 0.038     | -0.354   | 0.125     |
| Category of HAART (Drug line)       | -0.247   | 0.133     | 0.071  | 0.734     |
| Gender of Caregiver (female)        | -0.068   | 0.696     | -0.174   | 0.440     |

\*\* Lower level of education, older age of affected child, lower average monthly income, shorter duration of ART therapy, higher monthly expenditure on the illness and having a greater number of siblings of the affected child, were the identified predictors of increased severity of depression in caregivers.

\*No predictor was identified for severity of anxiety in caregivers.

## 4. Discussion

The authors observed moderate anxiety and depression scores among the caregivers attending the paediatric clinics in Calabar, Nigeria. This finding is similar to other studies by Fawzi et al, Tompkins, et al and Ndeti et al from Haiti, US and Kenya respectively [9-11]. Evidences suggest that mild to moderate depression can have as significant an impact on health functioning as severe depression, in particular in low income groups as seen amongst our patients [12-14].

The moderate scores observed in our study might be

related to the fact that most of our respondents were females, though married but from low socioeconomic status. Women are disproportionately vulnerable to depression and its effect may impact negatively on the family and quality of care [15]. It is documented that mental disorders such as depression and anxiety more commonly affect women across diverse societies and social contexts [16]. Women and girls have different susceptibility and exposure to mental health risks than men, and the risk of depression for women is nearly twice that of men [17]. However, a study by Kipp et al from Uganda [18], reported both male and female caregivers had similar care burden scores for the same responsibilities.

The low socioeconomic status as predictor for depression observed among our respondents may operate directly and indirectly via parenting stress of caring for the HIV infected child as well as other competing family and self needs. Poverty may exacerbate mental health problems. This plays important role in access to financial resources and treatment [19]. Caregivers with higher levels of education, better housing and those who have fewer adults in the household were the ones who were most likely to experience decreased levels of parenting stress [20].

The depression observed among majority of the caregivers who were HIV positive may be related to the cost of accessing health care, reduced income and productivity, including societal neglect from stigma and discrimination. HIV positive individuals are up to 2-4 times at higher risk of developing depression. Our findings are in support of other studies that depressive symptoms are more common in HIV-infected than HIV-uninfected individuals [21, 22].

The increasing levels of depression observed among caregivers caring for the older children might be related to nondisclosure issues with adolescence. Parents and caregivers in Nigeria rarely disclose HIV disease to their children. This leads to challenges with drug adherence, failure to keep clinic appointments, drug failure and financial burden with ultimate morbidity and mortality. In separate studies by Blasini and Battles in Puerto Rico and US, they observed that the children had self reported emotions and psychiatric illness [23, 24]. However, Univariate analysis by Menon *et al* [25] from Zambia showed no difference between children who knew their HIV status and those who were non-disclosed.

One of the goals of ART is to improve the quality of life; hence reduction of the duration of ART will predispose the patient to reduced immune status. This will eventually lead to increased morbidity with repeated infection and hospitalization with increased cost of accessing health care.

The present study shows that increasing age of caregivers is a predictor of depression. The older caregivers may present with physical vulnerability caused by age related health challenges that might affect the ability to provide the necessary care for the child. In addition, the financial and competing family needs may adversely affect care because most of our subject are married with increased family size. This is further worsened by the fact that approximately 90% of the recipients reside in the same household. This finding is consistent with observation by Papastavrou *et al* [26].

## 5. Conclusion

The study showed that female gender, lower income and HIV positive status were the identified predictors of presence of depression among caregivers. Depression was the commonest mental outcomes among caregivers.

## 6. Recommendations

Clinicians should extensively and regularly assess mental

health problems of caregivers of HIV positive children to ensure adherence to ART therapy and utilize multidisciplinary approach to reduce burden on caregivers.

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