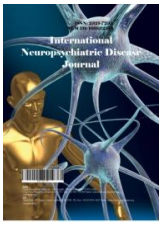

International Neuropsychiatric Disease Journal

14(2): 17-24, 2020; Article no.INDJ.59199
ISSN: 2321-7235, NLM ID: 101632319

Prevalence and Determinants of Depression among Caregivers of Children with Heart Diseases in Nigeria

Eze U. Chikezie[1], Chika O. Duru[2*] and Frances S. Okpokowuruk[3]

[1]Department of Mental Health, Niger Delta University, Amassoma, Bayelsa State, Nigeria.
[2]Department of Paediatrics and Child Health, Niger Delta University, Amassoma, Bayelsa State, Nigeria.
[3]Department of Paediatrics, University of Uyo, Uyo Akwa Ibom State, Nigeria.

Authors' contributions

This work was carried out in collaboration among all authors. All the authors were involved in the concept and design of the study. Authors COD and FSO were involved in the data acquisition and literature search. Author EUC was involved in the data analysis and interpretation and manuscript preparation. All authors were involved in the editing and final review of the manuscript.

Article Information

DOI: 10.9734/INDJ/2020/v14i230125
Editor(s):
(1) Dr. Pasquale Striano, University of Genoa, Italy.
Reviewers:
(1) Tinni Dutta, University of Calcutta, India.
(2) Mubashir Gull, Aligarh Muslim University, India.
Complete Peer review History: http://www.sdiarticle4.com/review-history/59199

Original Research Article

Received 10 May 2020
Accepted 16 July 2020
Published 27 July 2020

ABSTRACT

Context: Caregivers of children with heart diseases are faced with the long term care of these children and may suffer psychological illnesses as a result.
Aims: To determine the prevalence and determinants of depression among caregivers of children with heart diseases attending two Out-patient clinics in South-South Nigeria.
Materials and Methods: It was a cross-sectional study involving the use of the revised Center for Epidemiological Studies Depression (CESD-R) questionnaire. Data were entered into an Excel spreadsheet and analyzed using SPSS 22.0.
Results: Ages of the participants ranged from 24 to 59 years with a mean age of 37.49 years (SD 6.973) and majority were female (79.9%). The overall mean CESD-R score was 8.61 (SD 16.18), ranging from 0 to 60. There was a significant difference in the CESD-R scores between male and female participants (t=2.362, p=0.02) with females scoring higher than males (10.24± 17.69 and

**Corresponding author: E-mail: duru_chika@yahoo.com;*

2.15± 3.13) respectively. Overall, depression was found among 23(17.1%) participants. Depression was significantly associated with the female sex (x^2=7.006, p=0.009), a history of a mental health illness in the past (x^2=66.496, p=0.029) and the marital status of the participants (x^2=19.776, p=0.05). No significant relationship was found between depression and age, religion, tribe and educational status (p>0.05), history of medical illnesses (x^2=53.006, p=0.538) or type of heart disease the children/wards of the participants were being managed for (x^2=8.274, p=0.902).

Conclusion: The rate of depression among caregivers of children being managed for congenital and acquired heart diseases in this study is significant. It is recommended that caregivers of children with congenital and acquired heart diseases are routinely given relevant psychosocial support to prevent the development of depression. Routine screening for depression and appropriate intervention for those who meet the criteria is also recommended.

Keywords: Depression; caregivers; children; congenital; acquired; heart diseases.

1. INTRODUCTION

Heart diseases in childhood could place a lot of burden on parents and caregivers of children so affected. The burden of cardiac disease in African children remains largely underestimated due to several factors which include the paucity of data, lack of availability of facilities for both diagnosis and treatment and the poor socioeconomic circumstances of many of these children. In lower and middle income countries, it is estimated that morbidity and mortality from heart disease in children affects up to 15 million children annually [1].

Heart diseases in children could be detected at birth (congenital) or acquired later in life [1,2]. Globally, the incidence of congenital heart diseases is between 10-12 /1000 live births (3). In Nigeria, incidence rates have been reported to range from 3.5/1000 live births in the 1960s' to much higher rates of 14.4/1000 live births in recent times [3,4,5]. This demonstrates an increasing burden of cardiac disease, which coupled with the present advances in the treatment of these diseases globally results in most affected children surviving into adulthood [6]. Acquired heart diseases especially rheumatic heart disease are particularly common in Sub-saharan Africa and also causes significant morbidity and mortality [2]. These cardiac conditions usually metamorphose from acute illnesses to chronic medical conditions thus placinga huge financial, emotional and psychological burden on the parents and caregivers of these affected children [7,8]. This burden is most likely to be more in developing, resource-poor countries with inadequate health insurance and treatment facilities [9]. Thus most parents are unable to provide the necessary care and may suffer burnout [10]. They also suffer significant emotional distress and reduced quality of life [11,12] with some reporting symptoms of depression amongst others [13]. There are very few data on the prevalence and underlying factors leading to depression among parents and caregivers of children with congenital and acquired heart diseases especially in developing countries. From the few available data, it appears that there is significant psychological morbidity among caregivers of children with heart diseases and most of these go undetected. Such can negatively affect the quality of care they render to the affected children and thus needs to be addressed. The aim of this study was to screen for depression among the parents and caregivers of children diagnosed with congenital and acquired heart diseases. We also sought to describe the factors associated with depression among these caregivers. We theorize that there are significant levels of depression among caregivers of children with heart diseases which needs to be addressed to improve the overall quality of care rendered to those children.

2. SUBJECTS AND METHODS

2.1 Study Design

The study was conducted at the Paediatric Cardiology Out-patient clinics of the Niger Delta University Teaching Hospital (NDUTH) Okolobiri and the University of Uyo Teaching Hospital (UUTH) bothin South South Nigeria. The study was conductedover a period of eight weeks(1st of May to 30th June 2019).

This was a cross-sectional descriptive study involving the use of a self-administered questionnaire to 134 participants. The study was conducted using a sampling method in which all consecutive parents or caregivers of children with congenital or acquired heart diseases who attended the Paediatric cardiology out-patient clinics of the two tertiary institutions within the

study period were sampled after obtaining due written informed consent.

The revised Center for Epidemiological Studies Depression questionnaire (CESD-R) was used in this study to screen for depression [14]. This instrument is self-administered and takes less than 15 minutes to be completed. It has been widely used in epidemiological studies and validated. The CESD-R is a 20-item questionnaire which measures symptoms of depression based on the Diagnostic and Statistical Manual (DSM-V) criteria. The symptoms are placed in nine [9] different groups and scored on a Likert-like scale from 0 to 4 in an increasing order of frequency/ severity. The symptom groups are sadness (dysphoria), loss of interest (anhedonia), appetite, sleep, concentration, guilt, fatigue, agitation and suicidal ideation, The response values and scores of occurrence of depressive symptoms for each questions were: not at all/ less than once a day (0 points), 1-2 days (1 point), 3-4 days (2 points), 5-7 days (3 points) and nearly every day for 1-2 weeks (3 points).

2.2 Categories of Depressive Symptoms

Using the CESD-R questionnaire, the total possible scores range from 0 to 60 with a cut-off point of 16. A score of less than 16 signifies no depression or lack of clinical significance. Those with scores above 16 had symptoms of depression and this was further categorized into the following based on their responses on the questionnaire:

Major depressive episode: The presence of anhedonia or dysphoria nearly every day for the past 2 weeks plus symptoms in an additional 4 DSM symptom group noted to occur nearly every day for the past 2 weeks.

Probable major depressive episode: The presence of anhedonia or dysphoria nearly every day for the past 2 weeks plus symptoms in an additional 3 DSM symptom group noted to occur nearly every day for the past 2 weeks or 5-7 days in the past week.

Possible major depressive episode*:* The presence of anhedonia or dysphoria nearly every day for the past 2 weeks plus symptoms in an additional 2 DSM symptom group noted to occur nearly every day for the past 2 weeks or 5-7 days in the past week.

Sub-threshold depression symptoms: People who have CESD-R score of at least 16 but do not meet the other criteria.

No clinical significance: CESD-R score of less than 16.

The data was entered into an Excel spreadsheet and analyzed using SPSS 22.0

3. RESULTS

The ages of the 134 participants ranged from 24 to 59 years. The mean ages of the males was 42.37 years (SD 6.26) while that of the females was 36.26 years (SD 6.62) with an overall mean age of the participants being 37.49 years (SD 6.97).

The males were significantly older than the females (t=4.33, p=0.001). Most of the participants were aged 30 to 39 years (53%) and were females (79.9%). Trading/business was the commonest occupation among them (29.8%) and most were Christians (98.6%), married (97.8%) and had a tertiary level of education (65.7%). (Table 1).

Only 1(0.7%) of the participants reported a history of a mental health illness in the past while 15(11.2%) reported having a medical illness of which hypertension was the commonest (n=9; 6.7%) and 11(8.2%) were taking routine medications, mostly antihypertensive medications (6.0%).

The overall mean CESD-R score was 8.61 (SD 16.18), ranging from 0 to 60. Twenty three (17.1%) participants had a CESD-R score of 16 and above. There was a significant difference in the mean CESD-R scores between the male and female participants (t=2.362, p=0.02) with the females scoring higher than the males (10.24 ± 17.69 and 2.15± 3.13 respectively). Based on the CESD-R scores, 18 participants (13.4%) met the criteria for a Current Major Depressive Disorder (MDD), 2(1.5%) for a Probable MDD and 3(2.2%) for a Possible MDD. None of the participants had sub-threshold depression. Overall, depression was found among 23(17.1%) participants (Tables 2 and 3).

Depression was significantly associated with the female sex (x^2=7.006, p=0.009) as all the participants who met criteria for any type of depression were females. Depression was also significantly associated with a history of a mental health illness in the past (x2=66.496, p=0.029).

There was also significant association between depression and the marital status of the participants (x2=19.776, p=0.05). There was no significant relationship between depression and other socio-demographic characteristics such as age, religion, tribe, educational status (p>0,05), history of chronic medical illnesses (x^2= 53.006, p=0.538) or type of heart disease the children/wards of the participants were being managed for (x2=8.274, p=0.902) (Table 4).

4. DISCUSSION

The results show that 17.1% of the parents or caregivers met the criteria for depression according to their CESD-R scores. This is similar to that reported in another study where 18% of the parents of children with congenital heart defects had high depression scores which was twice as high when compared to the parents of healthy children [15]. This figure is quite significant and can be understood in the light of the burden they face in caring for the affected children. Other studies have also reported significant depression and other emotional challenges among parents and caregivers of children with congenital heart diseases [8,10,11,12]. Some parents may feel guilty and sad for giving birth to children with defective heart conditions. Apart from the physical and emotional burden of the long term care of these children, there is also a huge financial burden which is worse in countries with little or no health insurance [9]. All these factors coupled with concerns about a possible fatal outcome can contribute to significant depression and stress among the caregivers. In this study, only one participant had a past history of a mental illness which may suggest that the depressive symptoms seen were associated with the

Table 1. Socio-demographic characteristics of study participants

Characteristic	Frequency (n = 134)	Percent (%)
Age group		
20-29	14	10.4
30-39	71	53.0
40-49	41	30.6
50-59	8	6.0
Sex		
Male	27	20.1
Female	107	79.9
Occupation		
Trading/Business	40	29.8
Civil Servant	22	16.4
Teaching	19	14.2
Artisan	8	6.0
Others	36	26.9
Unemployed	9	6.7
Marital status		
Single	0	0.0
Married	131	97.8
Separated/Divorced	2	1.5
Widow/Widower	1	0.7
Tribe		
Ibibio	59	44.0
Igbo	23	17.2
Anang	12	9.0
Ijaw	40	29.8
Religion		
Christian	132	98.6
Muslim	1	0.7
Others	1	0.7
Level of Education		
No formal education	2	1.5
Primary	17	12.7
Secondary	27	20.1
Tertiary	88	65.7

Table 2. Clinical factors and diagnosis of depression among participants

Characteristics	Frequency (n = 134)	Percent (%)
History of mental illness in the past		
Yes	1	0.7
No	133	99.3
History of medical illnesses		
Hypertension	9	6.7
Peptic ulcer disease	2	1.5
Others	4	3.0
Nil	119	88.8
Current routine medications		
Yes	11	8.2
No	123	91.8
Which medications		
Anti-hypertensives	8	6.0
Others	3	2.2
Nil	123	91.8
Child/wards diagnosis		
Congenital heart disease	41	30.6
Acquired heart disease	93	69.4
Diagnosis of depression		
No depression	111	82.9
Major depressive episode	18	13.4
Probable major depressive episode	2	1.5
Possible major depressive episode	3	2.2

illnesses of the children and not just a manifestation of a previously existing disorder. Also the issue of societal stigma/taboo about mental illness may have led to non-divulgement of a previous history of mental illness [16].

All the participants that met the criteria for depression of any type were females. This agrees with previous studies that have reported higher rates of depression among females than males [17,18,19]. Although it can be argued that there were far more females than males in this study, none of the males scored high for depression. Thus, the higher scores among females appear significant. A similar study in Nigeria also had much more female participants [13]. However, the fact that the participants in this study were mostly females could have accounted for this. This is also buttressed by the observation that mothers and female caregivers are more directly involved in the routine care of children who are sick than the males [20,21].

There was a significant finding of lower rates of depression among participants who were married and those in stable relationships compared to those who were single, separated or divorced. This finding has been also noted by other authors. [17,18,19]. The emotional support received from couples in relationship towards caring for the affected child(ren) could play major roles in reducing the burden of care and associated depression [21]. This also underscores the importance of socioeconomic support which is more likely to be shared among parents and caregivers of children with heart diseases and other chronic childhood disorders that are in stable relationships.

There was no significant association between depression and other socio-demographic variables such as age, occupation and level of education. This is in contrast to other studies where significant relationships between those variables and depression have been reported [17,18,19]. The differences in the studied populations could have accounted for these observed disparities. There was also no significant difference in rates of depression among those caring for those with different types of heart diseases (i.e. congenital versus acquired heart diseases). It would have been interesting to compare variables between caregivers of children with congenital versus acquired heart diseases but that was not within the scope of this study. No previous study was found comparing these two subgroups and this may be worthy of exploration in the future.

Table 3. Depression and mean CESD-R score between male and female participants

Sex	Presence of Depression N (%)	Mean CESD-R score	SD	
				t=2.362 *p=0.02
Male	0 (0)	2.15	3.13	
Female	23 (17.1)	10.24	17.69	
Total	23 (17.1)	8.61	16.18	

statistically significant

Table 4. Relationship between depression and other variables among participants

Characteristics	Chi square	p value
Age group	7.39	0.518
Sex	7.006	0.009*
Tribe	86.85	0.989
Occupation	88.82	0.969
Religion	0.209	0.945
Marital status	19.776	0.05*
Level of education	3.666	0.892
Child/ward's diagnosis	8.274	0.902
History of mental illness in the past	66.496	0.029*
History of medical illness	53.006	0.538
Current routine medications	46.100	0.169

statistically significant

This study has shown that there is a high rate of depression among caregivers of children with congenital and acquired heart diseases, especially the mothers. As such, the mental health of these parents have to be considered so as to improve on the quality of care they render to these children and to reduce burnout. It will be interesting to explore the relationships between depression and socio-demographic variables among similar populations in larger studies in the future.

This study is not without limitations. This was a hospital-based study with 134 participants. This could limit its general application. The cross-sectional design could not permit causal inferences to be investigated. However, it is one of a few studies among the given population in this part of the world and in South-south Nigeria and provides a valuable background for future studies and relevant policies.

5. CONCLUSION

Congenital and acquired heart diseases are significant health challenges among children in many countries and tend to run chronic courses. They are associated with a huge burden of care. As a result, the parents/caregivers may suffer depression and other challenges that may lead to burnout and negatively affect the care they render to the affected children. It is recommended that measures should be put in place to care for the mental health needs of parents/caregivers of children with congenital/acquired heart diseases and other chronic childhood disorders, especially among the mothers who appear to be more at risk.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

Ethical approval for the study was obtained from the Research and Ethics committee of the NDUTH and UUTH. Written informed consent were obtained from all the adult participants before commencement of the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Musa NL, Hjortdal V, Zheleva B, Murni IK, Sano S, Schwartz S, Staveski SL. The global burden of paediatric heart disease. Cardiology in the Young. 2017;27(S6):S3-S8.
   Available:https://doi.org/10.1017/S1047951117002530
2. Animasahun BA, Madise-Wobo AD, Kusimo OY. Nigerian children with acquired heart disease: The experience in lagos. J Tehran Heart Cent. 2017; 12(4):160–6.
3. Hoffman JI. The global burden of congenital heart disease. Cardiovasc J Afr. 2013;24(4):141–5.
4. Gupta B, Antia AU. Incidence of congenital heart disease in Nigerian children. British Heart Journal. 1967;29(6):906–9.
5. Otaigbe BE, Tabansi PN. Congenital heart disease in the Niger Delta region of Nigeria: A four-year prospective echo-cardiographic analysis: Cardiovascular topic. Cardiovasc J Afr. 2014;25(6):265–8.
6. Oster ME, Lee KA, Honein MA, Riehle-Colarusso T, Shin M, Correa A. Temporal trends in survival among infants with critical congenital heart defects. Pediatrics. 2013;131(5):1502-8.
7. Sadoh W, Nwaneri D, Owobu A. The cost of out-patient management of chronic heart failure in children with congenital heart disease. Niger J Clin Pract. 2011;14(1):65-9.
8. Kolaitis GA, Meentken MG, Utens EMWJ. Mental health problems in parents of children with congenital heart disease. Front Pediatr. 2017;5:102.
9. Joe W. Distressed financing of household out-of-pocket health care payments in India: Incidence and correlates. Health Policy Plan. 2015;30(6):728–41.
10. Amakali K, Small LF. The plight of parents/caregivers of children with heart disease in the rural areas of Namibia: A problem of coping. Glob J Health Sci. 2013;5(2):62–73.
11. Khoshhal S, Al-Harbi K, Al-Mozainy I, Al-Ghamdi S, Aselan A, Allugmani M, et al. Assessment of quality of life among parents of children with congenital heart disease using WHOQOL-BREF: A cross-sectional study from Northwest Saudi Arabia. Health and Quality of Life Outcomes. 2019;17:183.
12. Lawoko S, Soares JJF. Distress and hopelessness among parents of children with congenital heart disease, parents of children with other diseases, and parents of healthy children. Journal of Psychosomatic Research. 2002;52(4): 193–208.
13. Okoromah CAN, Aina OF, Agbo DD. Screening for depression among parents of children with congenital heart disease in a Nigerian paediatric cardiology clinic. Sudan Med J. 2015;50(2):52–7.
14. CESD-R. CESD-R: Center for Epidemiologic Studies Depression Scale Revised Online Depression Assessment » CESD-R Explanation [Internet].
    Cited 2020 Mar 17
    Available:https://cesd-r.com/cesdr/
15. Pauliks LB. Depression in adults with congenital heart disease-public health challenge in a rapidly expanding new patient population. World J Cardiol. 2013; 5(6):186–95.
16. Armiyau AY. A review of stigma and mental illness in Nigeria. J Clin Case Rep. 2015;5:488.
    DOI:10.4172/2165-7920.1000488
17. Akhtar-Danesh N, Landeen J. Relation between depression and socio-demographic factors. Int J Ment Health Syst. 2007;1(1):4.
    Available:https://doi.org/10.1186/1752-4458-1-4
18. Adewuya AO, Adeyeye OO. Anxiety and depression among Nigerian patients with asthma; Association with socio-demographic, clinical, and personality factors. J Asthma. 2017;54(3):286–93.
19. Okeafor CU, Chukwujekwu CD, Omamurhomu Olose EO. Socio demographic correlates of depressed patients attending a tertiary hospital in Nigeria. J Addict Res Ther.2017;8:313.
    Available:https://doi:10.4172/2155-6105.1000313

20. Rahim F, Ebadi A, Saki G, Remazani A. Prevalence of congenital heart disease in Iran: A clinical study. J of Medical Sciences. 2008;8(6):547–52.

21. Albert PR. Why is depression more prevalent in women? J Psychiatry Neurosci. 2015;40(4):219–21.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle4.com/review-history/59199