



Research Article

ASSESSMENT OF DEPRESSION AND ANXIETY AMONG CARE GIVERS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER CHILDREN AT KHARTOUM STATE 2018

<sup>1</sup>Dr. Leena S. Taha, <sup>2</sup>Dr. Omer M. Hussein and <sup>3,\*</sup>Dr. Mohamed A. Mohamed

<sup>1</sup>Specialist Psychiatrist, Taha Basher Teaching Hospital. Lecturer, School of Medicine, Omdurman Islamic university, Sudan

<sup>2</sup>Associated Professor, Ribat National University, Khartoum, Sudan

<sup>3</sup>Psychiatry Registrar, Letterkenny University Hospital, Ireland

Received 20<sup>th</sup> April 2023; Accepted 15<sup>th</sup> May 2023; Published online 30<sup>th</sup> June 2023

Abstract

**Background:** Attention deficit hyperactivity disorder (ADHD) is a neuro-psychiatric disorder affecting children, teenagers and adults. It is characterized by pattern of decreased attention & impulsivity or hyperactivity. There are many problems associate with ADHD which affect the family situation, especially caregivers, put them on continuous stress and alert state. Looking after such disturbing child may cause emotional demanding on care givers. This may lead to development of anxiety symptom and depression. **Objectives:** The purpose of this study is to assess depression and anxiety among the care givers of ADHD children in Khartoum state during the period from March 2018-July 2018. **Methods:** This is a cross sectional hospital based study. Data was collected by socio-demographic questioner designed by the researcher and pre-designed questioners attended by direct interview, using Beck depression self-reporting rating invert and Taylor anxiety scale with caregivers attending the three major psychiatric clinic at Khartoum state (Elzahraa child psychiatry center at Eltegani Elmahi hospital- Taha Baasher Teaching Hospital & child psychiatry clinic at Military Hospital). **Results:** Total sample was 117 participants, included from military hospital was 51 caregivers, 28 from Taha Basher Teaching hospital, and 38 care givers from Elzahraa center. The majority of them in the three hospital was mothers (79.5%), most of the care givers from urban area (92.3%). care givers who lives within their small nuclear rather than extended family was 78.4%. majority of ADHD children were male (87.2%). the children who have another co-morbid mental illness constitute 42.7% of the total sample. 88.0% of care givers have no assistant help in caring their child. from all sample the presence of anxiety in variant degrees was (76.1%), and the prevalence of depression was (67.5%). The severity of anxiety and depression increases with increase of the level of education. **Conclusion:** The prevalence of anxiety and depression among care givers of ADHD children is relatively high. The finding of this study demonstrates the need of more studies related to ADHD children and their caregivers. The important of assessment of parents of ADHD children & should consider providing proper psychiatric and psychological management to them if needed.

**Keywords:** Caffeine, Aminophylline, Apnoea, Prematurity, Nigeria.

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a neuropsychiatric disorder affecting children, teenagers and adults. it is characterized by patterns of decreased attention and impulsivity or hyper activity (1). According to DSM-5 there are 6-9 inattention symptoms and 6-9 hyper activity – impulsivity symptoms for diagnosis (2). There are many problems associated with ADHD which affect the family situation specially care givers which puts them on a state of contentions stress and alert, like sleep disturbances, reduced academic performance and high risk of accidents (3). Generally parents have challenges to meet their child's needs (1). Their responsibility and load increased markedly when they have a child with ADHD (2). Caring for a child with mental disorder increases the emotional demands on them. This may lead to the development of anxiety symptoms and depression among care givers which may affect the quality of care given to the child (4). Attention Deficit Hyperactivity Disorder (ADHD) is characterized by inattention, hyperactivity and impulsivity. It is a common and widely studied neurobehavioral disorder in school age children. Some leading figures in the ADHD field have questioned whether ADHD as it is being diagnosed today actually does exist or whether it has become convenient to merely attribute behavioral difficulties

to ADHD resulting in overdiagnosis and inappropriate treatment of children (1). The American Psychiatric Association reports (5%) of children have ADHD. However, the CDC data obtained from the National Survey of Children's Health which has been carried out every 4 years from 2003, quotes a much higher figure of around (11%) of children aged 4-17 years. The diagnosis is on the increase, (5%) per year increase over the period 2003-2011. It is more common in boys (13.2% in boys, 5.6% in girls), with an average age at diagnosis of 7 years (5). Approximately half of all children with ADHD go on to have symptoms in adulthood. The National Resource Center on AD/HD (2014), quotes a prevalence rate of ADHD in adults in the United States of 4.4% (6). It is widely accepted that ADHD is a neurobiological disorder primarily affecting the dopamine and noradrenalin pathways in the brain (7), which a strong genetic influence (Ross, 2012). There is a (50%) concordance in the first degree relatives.

Justification

Anxiety, depressive symptoms, psychological and emotional stress among care givers definitely affect the wellbeing of the child with the special needs which is under their care. Children are better able to cope with their problems when their adult care giver is healthy and able to provide love and good care. Children with ADHD show many forms of maladaptive behaviors, these disruptive behaviors and its consequences put

\*Corresponding Author: Dr. Mohamed A. Mohamed  
Psychiatry Registrar, Letterkenny University Hospital, Ireland

numerous stressors in the family of this child, and the parents who struggle to raise a child with such behaviors that considered as unacceptable to others around the child. Perplexity of raising this child, feeling embarrassing of the impulsive disruptive child behavior outcomes, losing control, and many other negative consequences of being a father/mother of an ADHD child would result in many negative psychological effects on the parents. Depression and anxiety are real example for these psychological effects.

There are a lot of studies that highlight the impact of ADHA on the care givers. The current study focused on depression and anxiety in care givers of children diagnosed with ADHD. To the best of my knowledge I did not find previous researches about this in Sudan and this study can be considered as a beginning for such studies and researches.

## Objectives

### General objective:

Assessment of depression and anxiety among care givers of ADHD children at Khartoum state.

### Specific objectives:

- To estimate the prevalence of depression among care givers of ADHD children in Khartoum State.
- To estimate the prevalence of anxiety among care givers of ADHD children in Khartoum State.
- To determine the socio-demographic variables that appears to correlate with higher rates of anxiety and depression.

### Hypothesis:

1. Parents of children with ADHD suffer from depressive symptoms as a result of the condition of their child.
2. Parents of children with ADHD suffer from anxiety as a result of the condition of their child.

Parents of the ADHD children suffer from socioeconomic status that affects them psychologically.

## METHODOLOGY

### Type of study

This is a cross-sectional hospital based study.

### Study setting

The study performed in the main three child psychiatry clinic at Khartoum state in these hospitals:

- 1- Military hospital in Omdurman:  
Child psychiatry clinic established at 1998, it is the most popular and known clinic, it is weekly clinic, managed by consultant and team of psychiatric registrars, social workers and psychologists
- 2- Taha Baasher Teaching hospital
- 3- Elteгани Elmahi (Elzehraa center): this center established at 2015, it is weekly clinic, managed by specialist and team of psychologists and social workers.

**Study period:** from March 2018 until July 2018

**Study population:** care givers of children diagnosed with ADHD attending the clinics during the period of study, and accept to participate in the study.

**Inclusion criteria:** care givers of children diagnosed with ADHD attending the clinics during the period of study, and accept to participate in the study.

### Exclusion criteria

1. Care giver who has psychiatric illness before the diagnosis of his children with ADHD
2. Care giver who has medical cause for depression or anxiety (e.g. hypothyroidism-hyperthyroidism-)

### Sample size and technique

The sample was selected using Total coverage technique, because the numbers of children of ADHD in psychiatric clinic are in small number in the three targeted clinics. The number of participants from the target groups was 117 during the period of study.

### Data collection and tools

The data was collected by:

1. The designed sociodemographic data part of the questionnaire was designed by the researcher (attached), underwent by direct interviewing.
2. The Beck Depression Inventory (BDI) is a self-report rating inventory that measures characteristic attitudes and symptoms of depression (Beck, et al., 1961), the modified Arabic standardized for Sudanese culture version of BDI was used, it is an approved version from University of Khartoum and consists of 13 questions to assess severity of depression<sup>(9)</sup>.
3. The Taylor Anxiety Rating Scale is a psychological questionnaire used by clinicians to rate the severity of a patient's anxiety. This scale is considered as a "clinical rating" of the extensiveness of anxiety"<sup>(11)</sup>.

### Data analysis

The data analyzed by using statistical program of social science (SPSS) version 24.

### Ethical consideration

- Approval from (SMSB) SUDAN MEDICAL SPECIALIZATION BOARD.
- Approval was obtained from directors of the hospitals.
- Written consent from participants, explained to the participants the nature and aim of the study, the participants was assured that the safety and confidentiality will not be damaged the participant informed that the participation of the study is voluntary and their care will not be affected if they refused or if quite from the study at any time.

## RESULTS

### The prevalence of depression among care givers of ADHD children in Khartoum State

the results showed 28 ADHD children (23.9%) presented to Taha Basher teaching hospital, 38 ADHD children (32.5%)

presented to Eltejani Elmahi teaching hospital, and 51 ADHD children (43.6%) presented to Military Hospital during the period of the study. There was 82 mother (70.1%), 26 father (22.2%), and 9 (7.7%) are of other relations to children with ADHD. There was 19 caregivers (16.2%) of the age group 20-29 years, 45 caregivers (38.5%) of the age group 30-40 years, 41 caregivers (35.0%) of the age group 41-50 years, 9 caregivers (7.7%) of the age group 51-60 years, and 3 caregivers (2.6%) of the age group 61-70 years. There was 102 children with ADHD (87.2%) who are males while there are 15 children with ADHD (12.8%) who are females.

	Frequency	Percent
No Depression	38	32.5%
Mild	15	12.8%
Moderate	47	40.2%
Severe	17	14.5%
Total	117	100.0%

### To estimate the prevalence of anxiety among care givers of ADHD children in Khartoum State

The results showed 8 males (33.30% of males) and 20 females (21.50% of females) have no anxiety according to Taylor, 7 males (29.20% of males) and 18 females (19.40% of females) have mild anxiety according to Taylor, 7 males (29.20% of males) and 30 females (32.30% of females) have moderate anxiety according to Taylor, 2 males (8.30% of males) and 16 females (17.20% of females) have severe anxiety according to Taylor, and no one has profound anxiety according to Taylor.

	Frequency	Percent
No Anxiety	28	23.9%
Mild	25	21.4%
Moderate	37	31.6%
Severe	18	15.4%
Profound	9	7.7%
Total	117	100.0%

The results showed that 12 males (50.00% of males) and 26 females (28.00% of females) have no depression according to Beck, 2 males (8.30% of males) and 13 females (14.00% of females) have mild depression according to Beck, 8 males (33.30% of males) and 39 females (41.90% of females) have moderate depression according to Beck, 2 males (8.30% of males) and 15 females (16.10% of females) have severe depression according to Beck, and no one has profound depression according to Beck.

### To determine the socio-demographic variables that appears to correlate with higher rates of anxiety and depression

Half of the male caregivers found to have no depression while 41.90% of the female caregivers to children with ADHD found to have moderate depression according to Beck. P value was 0.214 so there is no significant correlation between depression and gender of the caregiver. 58% of the male caregivers had mild to moderate anxiety while 32.30% of the female caregivers had moderate anxiety according to Taylor, an Iranian study found that 50% of the mothers of children with ADHD had no anxiety (8). P value for the correlation between Taylor for anxiety and the gender found to be 0.255 (not significant) indicated that there is no correlation between anxiety of the caregiver and his/her gender. For correlation between caregiver relation to the ADHD children, P value

found to be 0.022 (significant) this results suggest the correlation between the caregiver relation to children and anxiety according to Taylor, 35.4% of mothers found to have moderate anxiety, 30.3% of fathers found to have mild anxiety while other relations of caregivers to ADHD children got very low numbers with majority of them 55.6% to have no anxiety at all. For correlation between Taylor of the caregivers and the genders of the ADHD children P value found to be significant (PV=0.016). Correlation found to be available according to P value (PV=0.048) for the correlation between Taylor and attachment to special needs center, no comparable data from the literature found. P value for the correlation between Beck and siblings diagnosed with ADHD was 0.00, this indicates a significant relation. P value for the correlation between Beck and presence of caregiver assistance was 0.033 this indicates a significant relation.

## DISCUSSION

This study is aimed to assess the anxiety and depression among care givers of ADHD children at Khartoum state. The study held in the three child psychiatric clinics at Military hospital in Omdurman, Taha Teaching hospital and Eltehani Elmahi hospital (Elzahraa center). This study evaluated the depressive symptoms, anxiety status of caregivers of children diagnosed with ADHD. It was observed that Beck for depression and Taylor for anxiety scores of caregivers of children diagnosed with ADHD were both significantly higher than healthy average population. Due to its chronic nature, ADHD causes a significant stress for the mothers. Sociodemographic data showed that the majority of the ADHD children caregivers were females i.e. 93 females (79.5%), many studies that were restricted to only mothers as the most predominant caregiver of ADHD children (9) (10) (8). Also the main relation of the caregivers to the children were to be their mothers 82 mother (70.1%) this is again the most common category internationally as found in other studies, while many studies were specialized only for mothers (11) (10) (8), other studies also found mothers to be the most common caregiver, Otieno Mary Anyango, et al. found that 76% of the participants were mothers (4) Most of the caregivers were between 30-50 years old; 45 caregivers (38.5%) of the age group 30-40 years, 41 caregivers (35.0%) of the age group 41-50 years this is consistent with many other studies, for example 58.5% were of the age group 36-55 years according to Otieno Mary Anyango, et al (4).

Most of the caregivers were married 100 caregivers (85.5%) who are married, 64.2% of the caregivers were found to be married in a Kenyan study (4). The majority of the caregivers received secondary school education 46.2% while the least was those who are uneducated 5.1%, it is comparable to those findings in the Kenyan study where 46.6% of the caregivers received secondary school education and 1.7% were uneducated (4). In the Kenyan study the majority of the caregivers of children with ADHD were full time employees 59.1% (n=134) (4) while in my study I found the majority to be of that not working category 67.5%. Extended families may not well recognized in many communities and this study found that nuclear families were the predominant category 80.3%. Age of the children with ADHD in this study had the most frequent category of 8-9 years 41.0%, in other studies like an Iranian study (8) the highest frequency was recorded for 12 years children by 28.6% followed by 8 years 21.4%. Male children with ADHD were the most frequent category 87.2%,

in a Turkish study 80% of the children with ADHD found to be males (11).

### Cross tabulation tables

Half of the male caregivers found to have no depression while 41.90% of the female caregivers to children with ADHD found to have moderate depression according to Beck. P value was 0.214 so there is no significant correlation between depression and gender of the caregiver. 43.8% of the participants in a Kenyan study had minimal depression (notice that study participants were 76.1% females (4), while in a Brazilian study 75.2% of the mothers of children with ADHD had depression (BDI score 15.84 i.e. mild depression) while for the fathers 80% had minimal depression (BDI score 12.21) (12). 58% of the male caregivers had mild to moderate anxiety while 32.30% of the female caregivers had moderate anxiety according to Taylor, an Iranian study found that 50% of the mothers of children with ADHD had no anxiety (8). P value for the correlation between Taylor for anxiety and the gender found to be 0.255 (not significant) indicated that there is no correlation between anxiety of the caregiver and his/her gender. For correlation between caregiver relation to the ADHD children, P value found to be 0.022 (significant) this results suggest the correlation between the caregiver relation to children and anxiety according to Taylor, 35.4% of mothers found to have moderate anxiety, 30.3% of fathers found to have mild anxiety while other relations of caregivers to ADHD children got very low numbers with majority of them 55.6% to have no anxiety at all, this is comparable to the Brazilian study results (12).

For correlation between Taylor of the caregivers and the genders of the ADHD children P value found to be significant (PV=0.016) this is comparable to the results of the Turkish study where 80% of children with ADHD were male (comparable to our findings) those caregivers found to had significantly higher anxiety rates than healthy ranges (11). Correlation found to be available according to P value (PV=0.048) for the correlation between Taylor and attachment to special needs center, no comparable data from the literature found. P value for the correlation between Beck and siblings diagnosed with ADHD was 0.00, this indicates a significant relation, unfortunately again no data from the literature. P value for the correlation between Beck and presence of caregiver assistance was 0.033 this indicates a significant relation.

### Conclusion

- Caregivers of children with ADHD have more tendencies to get depression and anxiety than general population.
- There are correlations between depression and having another sibling with ADHD as well as assistance presence.
- There are correlations between anxiety and gender of ADHD child (more with male child) and attachment to special needs centers.
- So both anxiety and depression are correlated to caregivers of children with ADHD.

### Recommendations

1. Psychiatrist should pay attention to the assessment of parents, as well as of children, and should consider providing appropriate psychological treatment to them

2. There should be increase of the level of awareness of parents. In this connection, therapeutic relaxation sessions and group therapy sessions can be added as a kind of promoting the medical service provided to the mother and the child' relevant seminars and workshop can also be organized in this regard.
3. There is need to increase awareness in rural areas about the importance of visiting the child psychiatry center if need
4. Also there is need to increase awareness about the importance of enrolling the ADHD in reapplication centers.
5. Having a child is a gift from God , even if he-she is deferent, it is incumbent on all of us, as individuals and society, institution, to support him-her and his-her parents, because the good mental health of the parents reflects on their performance as well as on the quality of the care they provide to children.

### Limitations of the study

1. The study design used cross sectional design, which lack follow up function.
2. The Sample was relatively small in size, that limit statistical [power of analysis which may weaken the strength of some parts or may some relations not detected.
3. The study was limited to only 3 public hospitals which might not represent the general population.

### REFERENCES

1. KAPLAN & SODOK'S ee. synopsis of psychiatry: Walters Kluewr; 2015.
2. Donald W. Black MDNCAMDPD. Introductory Textbook of psychiatry, sixth edition.
3. PAUL HARRISON PCTBMF. Shorter Oxford Textbook of psychiatry, Oxford University Press, seventh edition; 2018.
4. Anyango OM. The prevalence of Depression Among Caregiver of Children with Mental Disorder drawn at Kenyatta Natonal Hospital. Kenyatta Natonal Hospital, Department of Psychiatry, School of Medicine. 2013.
5. CDC. guidlines and recommendations, infection prevention and control.: centres for disease control and prevention; 2013.
6. National Institute of Mental Health (NIH) A-DD(. ; 2016.
7. Pediatrics M. 2018.
8. Roohallah Mirzaaghasi ea. Maternal Anxiety and Attention Deficit Hyperactivity Disorder (ADHD) in Children. J Midwifery Reprod Health. 2014; 2(4): 233-237.
9. strategies used by mothers of children with ADHD: A preliminary study. Anatolian Journal of Psychiatry. 2008.
10. Ramli M. ZS. Depressive, anxiety and stress levels among mothers of ADHD children and their relationships to ADHD symptoms. Asean Journal of Psychiatry. 2007; 8(1).
11. Ibrahim Durukan MEAEAOT. Depression and anxiety levels and coping. .
12. D. Segenreich ea. Anxiety and depression in parents of a Brazilian non-clinical sample of attention-deficit/hyperactivity disorder (ADHD) students, Symptoms of ADHD, anxiety and depression among parents. Brazilian Journal of Medical and Biological Research. 2009; 42(465-469).
13. Hanna N. Attention Deficit Disorder (ADD) Attention Deficit Hyperactivity Disorder (ADHD) is it a product of our modern lifestyle. American Journal of Clinical Medicine. 2009;: p. Volume, Six, Number Four.

14. Psychiatry AAoCaA. ; 2007.
15. Conners. attention deficit hyperactivity disorder: NIH consensus developmental program; 1988.
16. McDonnell MA. prevalence of psychopathology in preschool age children: wiley.com; 2003.
17. Brown. The Brown ADD scales: researchgate.com; 2000.
18. Health NIo. Attention Deficit Hyperactivity Disorder (ADHD). National Institutes of Health, U. S. Department of Health and Human Services. 2012; publication No. 12-3572.
19. Richard W. Root RJR. An Update on the Diagnosis and Treatment of Attention-Deficit/Hyperactivity Disorder in Children. Professional Psychology Research and Practice. 2003; Vol. 34( No. 1, 34-41).
20. WHO. the ICD-10 Classification of Mental and Behavioral Disorders. www.who.com. 1996.
21. Kashdan TB JRPWLAHB. Blumenthal JD and Gnagy EM, Depression and anxiety in parents of children with ADHD and varying levels of oppositional defiant behaviors: Modeling relationships with family functioning. J. Clin, Child Adolescence. Psycho. 2004; 33.
22. Zeng NaK. ADHD gene: a genetic database for attention deficit hyperactivity disorder. www.ncbi.nlm.nih.gov. 2012.
23. NeelaveniNarkuman AMKSSKPCGN. Stress among parents of children with attention deficit hyperactivity disorder, a Malaysian experience. Asia-Pacific Psychiatry. 2012; ISSN, 1758-5864.
24. Association AP. Diagnostic and Statistical Manual of Mental Disorders, (DSM-5). Fifth Edition ed.; 2013.
25. Borrill DJ. All about ADHD: the Mental Health Foundation; 2000.
26. Cohen N. J. VDD,BM,ea. The interface between ADHD and language impairment: an examination of language, achievement, and cognitive processing. Journal of child psychology and psychiatry. 2000; 41.
27. Yang P. JYJ,HHY,TJH. Psychiatric features and parenting stress profiles of subtypes of attention-deficit/hyperactivity disorder; results from a clinically referred Taiwanese sample. J DevBehavPediatr. 2007; 28.
28. Barkley Aa. 1990.
29. Baker. continuous performance tests: A comparison of modalities. wiley.com. 1995.
30. Elisa MeirellesAndrada KPDRSFMaMCdR. Quality of life.

\*\*\*\*\*