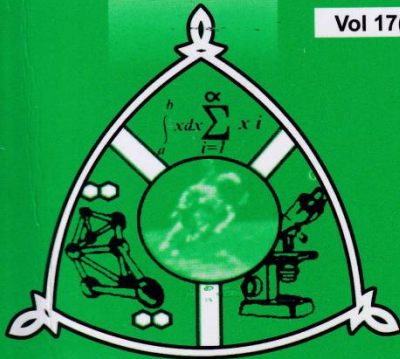


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COMMON NEUROPSYCHIATRIC DISORDERS AMONG CHILDREN AND ADOLESCENTS WITH NEUROPSYCHIATRIC ILLNESSES RECEIVING TREATMENT IN HOSPITALS IN KANO STATE, NIGERIA

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ABSTRACT

Neuropsychiatric disorders in children and adolescents represent an important area that needs attention. Children and adolescents are in critical developmental stages and they often have their own fair of health problems. The study set out to identify the frequently diagnosed types of neuropsychiatric illnesses and the age of onset of these disorders amongst children and adolescents in Kano, northwestern Nigeria. Cross-sectional descriptive research study which involved a random sample of 256 caregivers, recruited from two hospitals that provide mental health care services in Kano. Data were obtained from a set of questionnaire and Hospital records. These were organized and analyzed with SPSS version 23. The results indicated that the most common neuropsychiatric disorders of children and adolescents were epilepsy (41.1%), mental retardation (10.4%), substance related disorders and developmental disorders (8.7%). The mean age of onset of childhood neuropsychiatric disorders was 6.40 years SD±5.73. Compulsory mental health screening should be conducted during post-natal period and in school health services for children in nursery and primary schools.

Keywords: Age of onset, caregivers, children, adolescents, common neuropsychiatric illness.

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INTRODUCTION

One third of the world's populations are children and adolescents, with the majority living in low and middle-income countries (LMICs) [1]. The World Health Organization (WHO) estimates that neurological, mental and behavioral disorders and self-harm contribute 12 % of the global burden of diseases [2]. Half of neuropsychiatric disorders are estimated to have onset by the age of 14 years [3]. Globally, around 10 to 20 % of children and adolescents suffer from a mental health problem [1]. Children with psychiatric disorders are responsible for some, but not all, dubious behaviors in society [1]. In a review of epidemiological studies, it was reported that as many as one in five children and adolescents have a diagnosable mental disorder with suicide as one of the top three leading causes of death among adolescents [4, 5]. It is estimated that up to 20% of children and adolescents suffer from debilitating neuropsychiatric illnesses [6]. Most neuropsychiatric disorders have an onset in childhood or adolescence, increasing the risk for poor physical health, problems in social relationships, reduced psychological well-being and financial difficulties. Furthermore, the disorders were found to have association with an increase in health risk behaviors and decreased educational achievement [3, 7].

Child and adolescent mental disorders that pose a significant concern include learning disorders, attention deficit hyperactivity disorder (ADHD), depression and its associated suicide. Others include psychosis, pervasive development disorders, attachment disorders, anxiety disorders, conduct disorder, substance abuse and eating disorders [8]. Study Conducted in Nigeria shows that current psychiatric disorders were recorded in 67.9% and affective disorders accounted for 35.8% (Depression 17%, Hypomania 11.3% and dysthymia 7.5%), different types of anxiety disorders accounted for 17% and psychosis 3.8%. On the other hand about 64.2% had lifetime psychiatric disorders and depression accounted for 35.8%, suicidality 20.8%, panic disorder 3.8% and psychotic disorders 3.8% [9]. In another study, two thirds of the persons cared for by the caregiver have schizophrenia or psychotic illness (64%), while other patients have a bipolar affective disorder (18%), a depressive disorder (15%), an anxiety disorder (13%) or other mental health problem (18%) [10]. Attention deficit hyperactivity disorder (ADHD) and mental retardation were the most disabling conditions, with epilepsy and psychotic disorders ranking third and fourth respectively in northern Nigeria [11]. In a study on socio-economic challenges of parents of children with neurological disorder: a hospital-based study in North West Nigeria, in which Cerebral palsy (50.8%), seizure disorder

(39.4%), ADHD (6.6%) were the commonest disorders found [12]. In a recent community-based study in northern Nigeria, it was reported that there were many diagnosable mental health disorders among children and adolescents in the community [13].

There is a high prevalence rate of neuropsychiatric illness in Kano population especially within the young population [14] this could be due availability of psycho-stimulants drugs, lack of parental monitoring, socialization, peer group influence which could lead to neuropsychiatric disorders. It is estimated that at least 33% of all general medical patients have a diagnosable mental health problems and about 50-60% of general hospital in-patients suffer from significant psychological dysfunction as a primary problem or secondary to a diagnosed medical illness in Kano [14]. Therefore, a study of common neuropsychiatric illnesses and age of onset among children and adolescents with neuropsychiatric illnesses receiving treatment in hospitals in Kano state will provide a clear picture of frequently diagnosed type of neuropsychiatric illnesses and the age of onset of neuropsychiatric illnesses in the facilities so as to encourage appropriate screening, early recognition and care.

MATERIALS AND METHODS

Setting

The study was carried out in Kano, the Capital city of Kano State in Northwestern Nigeria. Approximately 35% of the population is literate with high gender disparities in school attendance and literacy [15]. The principal inhabitants of the city are the Hausa-Fulani, although a good number of other ethnic groups, such as the Igbos and Yorubas also inhabit parts of the city. The major language spoken is Hausa, although English is also widely spoken in schools, offices and markets. A sizeable number of its inhabitants engage in farming, some are civil servants and the rest are largely traders. There are forty two (42) hospitals in the state, however, only two hospitals, Aminu Kano Teaching Hospital and Dawanau psychiatric hospital offer mental health care services in Kano state.

Research design

A cross-sectional descriptive research designs was employed to identify the frequently diagnosed type of neuropsychiatric illnesses and the age of onset of neuropsychiatric illnesses among children and adolescents.

Study population and sampling

The study population consisted of all family caregivers of adolescents and children with neuropsychiatric

illness in the in-patient and out-patients units in the hospitals. The respondents were proportionately selected based on monthly ratio of caregivers' population of 1:2 (85 and 171 respondents) for the two hospitals, AKTH and Dawanau Hospital, respectively. Systematic random sampling technique was employed for the selection of respondents and the list of all the registered patients formed the sampling frame.

A total of 256 caregivers were recruited for the study based on mental health problems average prevalence rate of 55.0% [14], using the formula $n = \frac{z^2 pq}{e^2}$ [16].

Research instrument

The Data were collected using structured questionnaire and Hospital records. The questionnaire was administered to the caregivers. The response rate was 94.14%. Relevant data sections of the instrument were designed to sort out information to meet the study objectives. Caregivers' socio-demographic and patients' characteristics, patient diagnosis and their reported ages of onset were derived from the questionnaire and medical records.

Data analysis

Data were analyzed using Statistical Package for Social sciences (SPSS) software version 23. The data were summarized using frequency distribution tables and percentages. Mean and standard deviation were used for continuous variables, while frequencies and percentages were employed for discrete variables.

Ethical approval

This was obtained from the Research Ethics Committee of the AKTH and Kano State Ministry of Health Research Ethics Committee for the study. Written informed consent was obtained from respondents after being informed about their voluntary participation, their rights to withdraw their consent at any stage of the research and on the confidentiality, purpose, risk and benefits of the study.

RESULTS

Caregivers' socio-demographic characteristics

The findings from the study shows that majority of the caregivers (38.2%) were within the age range of 36-45 years. Mothers constituted 54.8% of the caregivers, while fathers made up the rest (31.5%). Also, most (50.2%) caregivers had no formal education, 49.8% reported being self-employed and 37.3% unemployed. Majority of them had an income of < ₦10,000 (60.2%) while 27.0% had ₦10,000-25,000 as income (Table 1).

Table 1: Socio-Demographic characteristics of respondents

Variable	Frequency	Percentage (%)	Mean/SD
Age of caregivers (In years)			
25-35	72	29.9	17.59/ 10.31
36-45	92	38.2	
>46	77	32.0	
Designation of caregiver			
Father	76	31.5	
Mother	132	54.8	
Grandfather	2	0.8	
Grandmother	5	2.1	
Others	26	10.8	
Marital status			
Married	207	85.9	
Divorced	16	6.6	
Widow	17	7.1	
Single	1	0.4	
Religion			
Islam	218	90.5	
Christianity	23	9.5	
Educational attainment			
No formal education	121	50.2	
Primary	35	14.5	
Secondary	43	17.8	
Tertiary	42	17.4	
Occupation			
Unemployed	90	37.3	
Self-employed	120	49.8	
Government employed	29	12.0	
Private sector	2	0.8	
Income			
< ₦10,000	145	60.2	
₦10,000-25,000	65	27.0	
₦26,000-40,000	18	7.5	
₦41,000-55,000	1	0.4	
>₦56,000	12	5.0	
Ethnicity			
Hausa/Fulani	216	89.6	
Igbo	16	6.6	
Yoruba	9	3.7	

(N= 241)

Patients' socio-demographic characteristics

Table 2 shows that 75 (31.1%) of the patients receiving treatments at the time of data collection were within the age range of 12 to 16 years (mean age: 10.87, SD=5.47). Most of the patients were males (54.8%; n=132) and females were 109 (45.2%). Majority of them (31.1%) were in primary,

52 (21.6%) in secondary and others (dropout, special school or not ready for school) each; 61 (25.3%) had no formal education. Majority of the patients were fifth (5th) and above among their siblings, only 54 (22.4%) were second (2nd) in their sibling hierarchy.

Table 2: Socio-demographic characteristics of patients

Variable	Frequency	Percentage (%)	Mean/SD
Age of the patient (In years)			
	51	21.2	10.87/5.47
2-6	55	22.8	
7-11	75	31.1	
12-16	60	24.9	
17-20			
Gender			
Male	132	54.8	
Female	109	45.2	
Position among siblings			
1 st	43	17.8	
2 nd	54	22.4	
3 rd	41	17.0	
4 th	18	7.5	
5 th and above	85	35.3	
Level of education			
No formal education	61	25.3	
Primary	75	31.1	
Secondary	52	21.6	
Tertiary	1	.4	
Others	52	21.6	

(N= 241)

Neuropsychiatric disorders among the patients

Table 3 indicates that the most common neuropsychiatric disorders found among of children and adolescents in the study area were epilepsy (41.1%), mental retardation (10.4%), substance

related disorders and development disorders (8.7%), attention deficit hyperactivity disorder (ADHD) and unspecified psychotic disorders (7.9%).

Table 3: Neuropsychiatric illness suffered by children and adolescents

Variables	Frequency	Percentage (%)
Epilepsy	99	41.1
Mental retardation	25	10.4
Substance related disorders	21	8.7
Development disorders	21	8.7
Hyperkinetic disorders (ADHD)	19	7.9
Unspecified psychotic disorders	19	7.9
Schizophrenia	12	5.0
Conduct disorder	7	2.9
Learning disorders	7	2.9
Anxiety disorders	6	2.5
Depression	3	1.2
Eating disorders	1	0.4
Mania	1	0.4

(N= 241)

Age of onset of neuropsychiatric disorders

Data revealed that majority (60.6%) of the neuropsychiatric illness had an onset from one to five (1-5) years of age. In 41 (17.0%) cases, the illness was reported to have begun within the age range of 6

to 10 years, while 29 (12.0%) cases began at 16-20 years, about one in 10 cases (10.4%; n= 25) were within the age range of 11-15 years. The mean age of onset is 6.40 years (SD=5.73) (Table 4).

Table 4: Age of onset of mental illness

Variables (Age in years)	Frequency	Percentage (%)	Mean/SD
1-5	146	60.6	
6-10	41	17.0	6.40
11-15	25	10.4	5.73
16-20	29	12.0	

(N= 241)

DISCUSSION

The results of this study revealed that most caregivers of mentally sick children and adolescents (38.2%) were within the age range of 36-45 years with mean age of 17.59 (SD=10.31). This is not consistent with the findings of Yusuf *et al* [17] reported that the mean age of the caregivers in Katsina was 45.44 years. This also contrasts with findings of studies carried out in 22 European countries, [10] reported a mean age of 58 years with one in six caregivers being younger than 55 years (14%) and one third older than 65 years (33%). The study finding also reveals that more than 54.8% of caregivers were mothers; only 31.5% were fathers. Across most cultures, women were more likely to be caregivers of sick children. This study is consistent with the findings of census in United Kingdom [18] Chan in Asian countries [19] and World Federation of Mental Health [20] that variously found that 58% of the caregivers were women and 70% of family caregivers were females. They could be the mother, wife, or daughter of the clients.

This study reveals that more than 64.7% caregivers had low level formal education. This finding may not be unrelated to the fact that girls-child education has been a big challenge in northern Nigeria [11]. The study finding is also in line with other findings in rural Ghana, [21] which reported that, majority (62.4%) of caregivers did not attend any form of school, with 15.3% having only primary education. Caregivers occupational and income profiles reveal very low or no regular income and unemployment levels (49.8% were self-employed, 37.3% unemployed with an income of < ₦10,000 (60.2%) and ₦10,000-25,000 (27.0%). This is attributed to the fact that most of the caregivers had no formal qualification and by implication will be unemployed or self-employed. In addition, many of the respondents were married women and most of the married women in Hausa communities are house wives who engaged in petty trading or having no source of income. The findings of this study were also inconsistent with the study in Lagos, Nigeria, [22] who reported that, most of the caregivers (94.2%) had some form of employment with 79.2% rating themselves as belonging to a medium socio economic earning level of approximately 100 – 200 USD (N35,800 – N71,600) equivalents per month. The study is also in line with World Federation of

Mental Health, [20] and a study by Organization for Economic Cooperation and Development in Australia, United Kingdom and United states, [23] reported that caregivers are usually within the low income bracket and caregivers of children and adolescents with a severe mental disorder live in households with income below the low-income threshold.

The study revealed that majority (54.8%) of the patients were males and 109 (45.2%) were females. This is due to the fact that most children and adolescents neuropsychiatric disorders were substances related disorders, epilepsy and ADHD which are more prevalent among males than females. This report is in line with the study conducted in Lagos, Nigeria [24] and in Maringá, Paraná, Brazil, It has been reported [25] that variously reported that 52.8% of the patients were males while 47.2% were females and the majority (72%) were boys. The study also indicated that 75 (31.1%) were in primary schools, 52 (21.6%) in secondary and others (dropout, special school or not ready for school) and 61 (25.3%) had no formal education. The lower educational level could be attributed to stigma and abnormal behaviors manifested by the patients who prevented them from progressing to higher level. This is similar with the study carried out in Lagos, Nigeria [24] that reported 30.9% of the patients were in Nursery/primary school and 21.5% were in secondary school while the rest were either in a vocational/special school, out of school, or had no formal education. Majority 85 (35.3%) of the patients were in fifth position and above among their siblings, and only 54 (22.4%) belong to second position.

Majority (41.1%) of children and adolescents had epilepsy, 10.4% had mental retardation, 8.7% had substance related disorders and developmental disorders, and 7.9% had attention deficit hyperactivity disorder and unspecified psychotic disorders. The study report is in line with the findings in Zaria, Nigeria, [12] which identified epilepsy and Attention deficit hyperactivity disorder (ADHD) while AbdulMalik *et al.*, in Northern Nigeria, [11] reported ADHD, mental retardation, unspecified psychotic disorders and epilepsy, Peter *et al.*, in Ilorin, Nigeria, [9] reported unspecified psychosis whereas, Dada *et al.*, in Lagos, [24] identified epilepsy, unspecified psychosis and ADHD as the most common neuropsychiatric disorders in children and adolescents. Although, Cerebral palsy

in Zaria, [12] and mood disorder, organic psychosis and schizophrenia in Lagos [24] were reported among majority of the neuropsychiatric disorders in children and adolescents which were inconsistent with the study findings. However, none of the studies identified substance use disorders and development disorders as the common neuropsychiatric illness in their study communities. The study result was also inconsistent with the findings in Ilorin, Nigeria [9], which reported affective disorders (Depression, Hypomania and dysthymia) and different types of anxiety disorders while Vermeulen *et al.*, in 22 European countries, [10] reported schizophrenia, depressive disorder, anxiety disorders and bipolar affective disorder as the major neuropsychiatric illness among children and adolescents. The study findings also revealed that Learning disorders, anxiety disorders, Schizophrenia, eating disorders, conduct disorder, depression and mania were among least common neuropsychiatric illness amongst children and adolescents in Kano state hospitals which were part of WHO [8] report on Child and adolescent neuropsychiatric disorders that pose a significant concern for caregivers, community and Government.

Majority (60.6%) of the neuropsychiatric illnesses had an onset between 1-5 years of age. This could be attributed to the fact that most neuropsychiatric illnesses in the study were epilepsy which the caregivers identify in early years. Similar study findings in northern Nigeria [13], have also been reported. This study finding is not consistent with study [3] which reported that half of neuropsychiatric disorders are estimated to have onset by the age of 14 years.

Despite the findings of this study, it was reported also in this study that most (31.1%) of the patients (child and adolescents) receiving treatment were within the age range of 12-16 years. This may be associated with the fact that most caregivers reported to the facilities after probably trying alternative therapies at home for so many years. It is common in Hausa communities that mental illness is misperceived as being caused by evil spirits, *Jinx*, and believed to be best treated using traditional medicines. The findings of this study on age ranges of affestation were not in line with the finding in Maringá, Paraná, Brazil, [25] which reported that, Children and adolescents with mental illness were aged between 7 and 16 years.

CONCLUSION

Majority of children and adolescents develop neuropsychiatric disorders such as epilepsy, mental retardation, substances related disorders, developmental disorders, unspecified psychotic disorders and attention deficit hyper activity disorder

with the mean age of onset of 6.40 years $SD \pm 5.73$. This is a bug challenge to the mental health professionals and Paediatric personnel.

RECOMMENDATIONS

1. Caregivers should develop a good health seeking behavior as early as any abnormal behavior is identified so that the patient would have a proper intervention at the right time through early detection, primordial and primary prevention of mental illnesses.
2. Community members should form patient support groups such as assertive community treatment in order to meet regularly with patient to help reduce the need for hospitalization or a decline in their mental status.
3. It could be suggested that compulsory mental health screening should be conducted during post-natal period and in school for nursery and primary schools children to help in early detection of mental illnesses, provide more mental health services.

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