



## Prevalence and Pattern of Mental Illness among School Age Children Seen at the University of Port Harcourt Teaching Hospital: A Six Year Study

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Authors AKN and BAAH designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AKN and BAAH managed the analyses of the study. Author BAAH managed the literature searches. Both authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/INDJ/2019/V13i3-430113

#### Editor(s):

(1) Dr. Pasquale Striano, Pediatric Neurology and Muscular Diseases Unit, G. Gaslini Institute, University of Genoa, Genova, Italy.

#### Reviewers:

(1) Romer C. Castillo, Batangas State University, Philippines.

(2) Lenycia de Cassya Lopes Neri, University of São Paulo, Brazil.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/54877>

**Received 10 December 2019**

**Accepted 14 February 2020**

**Published 18 February 2020**

**Original Research Article**

### **ABSTRACT**

**Background:** A sound mental health in school age children is critical for good academic achievements and a better transition from childhood to adulthood. The increasing prevalence of mental illness in school age children, especially the adolescents, is of great public health concern globally.

**Aim:** The aim of this study therefore was to determine the prevalence and pattern of mental health disorders among school age children seen at the University of Port Harcourt Teaching Hospital (UPTH).

**Methodology:** Consent for the study was obtained from the research ethical committee of the hospital. Medical case notes of all patients aged 5 years to 18 years seen in the clinic by Consultant Child and adolescent Psychiatrists from 2015 to 2019 were retrieved and thoroughly reviewed. Data was analyzed using the SPSS version 20 statistical package and results presented using descriptive and analytical methods.

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**Results:** Out of 7,856 patients seen in the Neuropsychiatry Clinic within the period under review, 408 (5.2%) were children aged between 5 to 18 years. Male was higher with 232 (56.9%). The most prevalent mental illnesses were anxiety disorders, 58 (14.2%), depressive illnesses 46 (11.3%), schizophrenic illness 44 (10.8%), mental and behavioural abnormality secondary to substance abuse (MABD) 43 (10.5%), bipolar affective disorders 37 (9.1%), while conversion disorders was the least with 3 (0.7%).

**Conclusion:** Mental disorders are common among school age children seen in UPTH and often impair the emotional wellbeing of this population. A detailed and well worked out plan of management is needed to provide optimal mental health services to children and adolescents. Well-coordinated mental health services should be inculcated into the School Health Programme in Nigeria.

*Keywords: Psychiatric problems; school age; child and adolescent; UPTH.*

## 1. INTRODUCTION

The prevalence and consequences of untreated mental illnesses in school age children have continued to increase worldwide [1-5]. Globally, 10 to 20% of children and adolescents are said to be suffering from one form of mental illness or the other, yet majority of the cases of these illnesses remain undiagnosed and untreated [6,7,8]. According to the United States (US) Department of Health and Human Services, one in five children and adolescents experience a mental health problem during their school years and unfortunately up to 60% of them do not receive the treatment they need due to stigma and lack of access to services [9]. These untreated mental health problems are often a great burden to the children, limiting their academic achievements, quality of life and well-being, social relationships in the family and with friends [9].

Several studies have also reported that the prevalence of mental disorders among children and adolescents is greater than in the general population [10-15]. This may be due to general increase in environmental stressors and poor attention to biological causations of psychological or mental disorders both during the maternal and neonatal periods [5,16]. Also, poor parental upbringing, increased rates of family disharmony, recent upsurge and advancement in information technology and increase in early use of substances of abuse have all contributed to the increase in childhood and adolescent mental disorders [16,17].

Furthermore, the population of children and adolescents in the child welfare system has constantly been increasing over the last 20 years with an overall rate estimated to be 18 per 1000 [4,5,10,12,13]. A substantial proportion of this

population who developed mental illness seek care in the hospital. Studies have found out that in addition to childhood and adolescent stages which make children prone to developing mental health issues, being involved in Children Welfare System (CWS) increases this vulnerability as these children and adolescents are often faced with emotional difficulties, most times due to adverse childhood experiences, child abuse and neglect, separation from their biological parents, or placement instability [14,16].

Additionally, several adverse experiences including child abuse, maltreatment and multiple placements may also contribute to the worsening of externalized disorders such as conduct disorders and attention deficit hyperactivity disorders that are already present or the promotion of the emergence of such disorders. These have remained a source of concern for parents and caregivers of these children and adolescents as it has the tendency to snow-ball negative outcomes, such as the risk of developing antisocial personality disorder and substance use disorders [17-19]. These disorders are known to be risk factors for delinquency, interactions with the juvenile justice systems, homelessness and suicide [18]. Also, childhood and adolescent mental disorders significantly impairs the overall functioning and quality of life of affected individuals [19-21], as well as posing substantial economic burden on both the family and the nation [22].

Internalized disorders such as anxiety and depression are found to be common among children and adolescents [23,24]. In a study, 18% of the subjects had anxiety disorder, and 11% had depressive disorder, and these were approximately 3- and 4-fold greater than those of the general population, respectively [1]. Other behavioural disorders like ADHD, conduct

disorders, substance abuse and delinquency have equally been noted to be of concern among children and adolescents [25-30]. If left untreated, these disorders often persist into adult life with lasting effects on many aspects of life. Therefore, it is necessary to acknowledge the gravity of these health problems in this population, particularly considering their negative impact on psychosocial functioning and quality of life and their associations with increased suicide rates and drug- and alcohol-use disorders [17,19-22].

Furthermore, children and adolescents who suffer from both externalized and internalized mental disorders tend to perform poorly in schools largely due to distractions and different degrees of cognitive impairment [18-20]. Additionally, both retrospective and prospective studies have shown that most adult mental disorders begin in childhood and adolescents [31].

In spite of their important health care needs, children and adolescents especially from poor resource countries experience a number of barriers in accessing appropriate and continuous care that worsen their prognoses [30,32-34]. All of these factors add to the disease burden and substantial economic effects and major costs to families and society [22].

The developed world realizing the importance of sound mental health in the development of children and adolescents, organized several school-based mental health interventions geared towards mental health promotion or primary prevention for all students in school [35]. Available researches have shown moderate to strong evidence that these interventions are effective in promoting good mental health and related outcomes among school children [36]. Research has also demonstrated that students who receive social, emotional and mental health support achieve better academically, because the school climate, classroom behaviour, on-task learning and students' sense of connectedness and well-being tend to improve [9]. Unfortunately, such interventions are lacking in schools in Nigeria as well as in other developing countries, where 85% of the global population of children and adolescents live [36], and where adverse conditions are most prevalent and their impact most devastating [37].

There is also dearth of hospital and community-based empirical data on the magnitude, course,

and treatment patterns of mental disorders among school age children in Nigeria that can encourage efforts essential for establishing child and adolescent mental health policy. More reliable estimates of the prevalence of mental disorders among children and adolescents are needed to inform public policy and to develop adapted psychiatric services, age-specific training for professionals, and research planning. This study therefore attempts a search for hospital-based prevalence of mental disorders in school age children, including baseline socio-demography.

### **1.1 Aim**

The aim of this study therefore was to determine the prevalence and pattern of mental disorders among school age children 5 to 18 years seen at the University of Port Harcourt Teaching Hospital.

## **2. METHODOLOGY**

This retrospective study was done among children aged 5 to 18 years attending the Child and Adolescent Clinic of the Psychiatry Department of UPTH. Consent for the study was obtained from the research ethical committee of the hospital. Medical case notes of all patients who fell within the ages under consideration seen in the clinic from 2015 to 2019 were retrieved and thoroughly reviewed. These were patients who have been evaluated and diagnosis made by a Consultant Child and Adolescent Mental Health Physicians. Information sought included socio-demographic, year of presentation and diagnosis. Data was analyzed using the SPSS version 20 statistical package and results presented using descriptive and analytical methods. Confidence interval was set at 95% while P- value of less than 0.05 was considered statistically significant.

### **2.1 Limitation of the Study**

1. This study mainly relied on past medical records, it is therefore possible that this could have limited the extent of information obtained compared to primary data.
2. Some differences do exist in the classification of diseases as well as diagnostic formulation by different Professionals based on either the ICD or DSM diagnostic criteria. This may have, to some extent, influenced the findings in this

study in comparison to other similar studies.

differences were not statistically significant ( $p=0.126$ ).

### 3. RESULTS

Out of 7,856 patients seen in the Neuropsychiatry Clinic within the period under review, 408(5.2%) were children aged 5 to 18 years. Two hundred and thirty two (56.9%) were males and 176 (43.1%) were females with male to female ratio of 1.3:1. Table 1 shows that majority 95 (23.3%) of the patients were diagnosed in 2018, followed by 88 (21.6%) in 2015. Table 2 shows that the age group with the highest prevalence of mental disorder was the 15-18 years age group with 287 (70.3%), followed by the 11-14 years age group with 83 (20.3%). Table 2 equally shows that there is no statistically significant difference ( $p=0.656$ ) in the prevalence of mental disorder between males and females.

The most prevalent mental illnesses were anxiety disorders 58 (14.2%), depressive illnesses 46 (11.3%) and schizophrenic illness 44 (10.8%), while conversion disorders was the least 3 (0.7%) (Table 3). The most common mental disorders among the males was MABD 32 (7.8%), followed by schizophrenia 28 (6.7%) and anxiety disorders 27 (6.6%). The most common mental disorder among the females was anxiety disorders with 31 (7.6%), followed by depressive disorders 27 (6.6%) and bipolar affective disorders 21 (5.1%). This was statistically significant ( $p=0.030$ ).

Table 4 shows age distribution according to diagnosis. The commonest mental disorders among the age groups 10 years and below, 11-14 and 15-18 years were ADHD 7 (18.0%); Anxiety disorders 9 (10.8%) and Anxiety disorders 48 (16.7%) respectively. These

**Table 1. Showing the yearly distribution of children and adolescents seen in UPTH**

Year	Frequency	Percentage
2014	57	14.0%
2015	88	21.6%
2016	61	15.0%
2017	53	13.0%
2018	95	23.3%
2019	54	13.2%
Total	408	100%

### 4. DISCUSSION

This study aimed at determining the prevalence and pattern of mental health disorder among school age children 5 to 18 years that were seen in the University of Port Harcourt Teaching Hospital. We observed a prevalent rate of 5.2% of mental health disorder among the school age children, which is lower than the global estimate of 10-20% [6,7,28], and the prevalence of 14.3% reported for Sub-Saharan Africa [37]. The prevalence in this study is also lower than that reported in Western Nigeria (11.4%) [38], China (9.74%) [39], and Italy (8.2%) [40]. It is however higher than the 3.5% and 2.9% reported in Ethiopia [40] and in Spain [41] respectively. These differences in prevalence rates between this present study and the previous studies could be as a result of the different screening and diagnostic tools used in the different studies. For example, in a systematic review of child mental health problems in Sub-Saharan Africa, it was observed that studies using screening questionnaires observed higher prevalence rates than studies using clinical diagnostic instruments [37].

**Table 2. Showing age and sex distribution**

Age	Frequency	Male	Female
10 years and below	38 (9.3%)	22 (9.9%)	16 (9.1%)
11-14 years (early adolescents)	83 (20.3%)	44 (19.0%)	39 (22.2)
15-18 years (late adolescents)	287 (70.3%)	166 (71.6%)	121 (68.8%)
Total	408 (100%)	232 (100%)	176 (100%)
Mean	14.96	15.05	14.84
Median	16.0	16.0	16.0
Mode	18	18	18
Standard deviation	3.392	3.246	3.598
T test			0.446
df			406
P value			0.656

**Table 3. Showing diagnosis and sex distribution of mental disorders among school age in UPTH**

<b>Diagnosis</b>	<b>Frequency (%)</b>	<b>Male (%)</b>	<b>Female (%)</b>
Anxiety disorders	58 (14.2)	27 (6.6)	31 (7.6)
Depressive disorder	46 (11.3)	19 (4.7)	27 (6.6)
Schizophrenia	44 (10.8)	28 (6.7)	16 (3.9)
MABD	43(10.5)	32 (7.8)	11 (2.7)
Bipolar affective disorder	37 (9.1)	16 (3.9)	21 (5.1)
Mixed anxiety and depression	23(5.6)	10(2.5)	13 (3.2)
Seizure disorder	21(5.1)	12(2.9)	9 (2.2)
Mental retardation	18 (4.4)	12 (2.9)	6 (1.5)
ADHD	17 (4.2)	11 (2.7)	6 (1.5)
Schizoaffective disorder	17(4.2)	11 (2.7)	6 (1.5)
Organic psychosis	16 (3.9)	9 (2.2)	7 (1.7)
Autism	14 (3.4)	10 (2.5)	4 (1.0)
Acute psychosis	12 (2.9)	8 (2.0)	4(1.0)
Conduct disorder	10 (2.5)	9 (2.2)	1 (0.3)
Learning disability	9 (2.2)	6 (1.5)	3 (0.7)
Enuresis	7(1.7)	5 (1.2)	2 (0.5)
Seasonal affective disorder	7(1.7)	2 (0.5)	5 (1.2)
Speech impairment	5(1.2)	4(1.0)	1(0.3)
Conversion disorder	3(0.7)	0 (0.0)	3 (0.7)
<b>Total</b>	<b>408 (100%)</b>	<b>232 (56.9%)</b>	<b>176 (43.1%)</b>
		Chi Square	15.554
		df	18
		P value	0.030

**Table 4. Showing age distribution according to diagnosis**

<b>Diagnosis</b>	<b>10 years and below (%)</b>	<b>11-14 years (%)</b>	<b>15-18 years (%)</b>
Anxiety disorders	1(2.6)	9(10.8)	48(16.7)
Depressive disorder	2(5.1)	6(7.2)	38(13.2)
Schizophrenia	1 (2.6)	6 (7.2)	37 (13.0)
MABD	1(2.6)	7 (8.4)	35(12.2)
Bipolar affective disorder	2 (5.1)	6 (7.2)	29 (10.1)
Mixed anxiety and depression	2(5.1)	4(4.8)	17(5.9)
Seizure disorder	1 (2.6)	7(8.4)	13(4.5)
Mental retardation	1(2.6)	7(8.4)	10(3.4)
ADHD	7 (18.0)	5(6.0)	5(1.7)
Schizoaffective disorder	0(0.0)	3 (3.6)	14 (4.9)
Organic psychosis	0(0.0)	3(3.6)	13(4.5)
Autism	6 (15.4)	4(4.8)	4(1.4)
Acute psychosis	1(2.6)	2(2.4)	9(3.1)
Conduct disorder	2(5.1)	5 (6.0)	3(1.0)
Learning disability	4(10.3)	2 (2.4)	4 (1.4)
Enuresis	4 (10.3)	2(2.4)	1(0.3)
Seasonal affective disorder	0 (0.0)	2(2.4)	5(1.7)
Speech impairment	2(5.1)	1(1.2)	2(0.7)
Conversion disorder	1 (2.6)	2(2.4)	0(0.0)
	<b>38 (9.3%)</b>	<b>83 (20.3%)</b>	<b>287 (70.3%)</b>
		Chi Square	20.119
		df	18
		P value	0.126

We noticed a slight male preponderance (56.9%) amongst the children. This agrees with the in the prevalence of mental health disorder report of Abiodun et al. [38], Shen et al. [39],

Llanes-Alvarez et al. [42] and Lawrence et al. [43] who also observed male preponderance in the prevalence of mental health disorder in their studies. However, our finding is at variance with the report of Ashenafi et al. [40] who found a slight female preponderance in their study. This inconsistency is difficult to explain, however, it may be an indication of effect size reflecting environment of study and total number of cases reviewed.

A very important observation is the steady number (53-61) of school age children who presented for treatment yearly, except for 2015 and 2018 when the numbers were almost doubled. Since studies have shown that only a quarter of children and adolescents with mental health disorders access mental health services [44], it is safe to assume that the remaining three quarters may be within the communities undiagnosed and untreated. One of the targets of the Sustainable Development Goal (SDG) 3 is to reduce premature mortality from non-communicable diseases through prevention and treatment as well as promoting mental health and wellbeing [45]. Thus, emphasis should be placed on extending mental health screening and diagnostic services within the school communities and the institution of preventive interventions in schools.

We observed that the prevalence of mental health disorders increased as the ages of the patients increased, with the age group 15-18 years having the highest prevalence (70.3%), followed by the 11-14 years group (20.3%). This is not surprising because the adolescent age group has been recognized as a high risk group for mental health problems. In fact half of all mental health illnesses are said to begin by the age of 14 years. This is probably because the adolescent period is a crucial period for developing and maintaining social and emotional habits important for mental wellbeing [46] and exposure to risk factors like socioeconomic problems, harsh parenting and bullying, age of curiosity and desire for experimentation, identity crisis, academic pressures and peer pressures negatively affects their mental health [46]. In this study, the age group with the lowest prevalence of mental health disorders were those who were 10 years and below. Other researchers [35,43] have similar findings. It is also possible that some in this lower age group, may have been presenting to the Paediatric Clinic where some may have been lost during referral to the child and adolescent mental health clinic, while others

may have actually received evaluation, hence the need for stronger collaboration.

Anxiety disorders are said to be the most common mental health disorders, affecting 30% of adults at some point in their lives [47]. Our findings agree with this, because anxiety disorders were the most common mental health disorder amongst the school age children, with a prevalence of 14.2%. This was closely followed by depressive disorders (11.3%) and Schizophrenia (10.8%). Our finding is also in agreement with the report of Ashenafi et al. [41] that the most diagnosed mental health disorder in their study was anxiety disorder. However, it contrasts with the report of Tunde-Ayinmode [36] in South West Nigeria who found schizophrenia as the most common mental health disorder in his study. It also contrasts with report of Lawrence et al. [43], who found ADHD as the most common mental health disorder amongst Australian school children. However, since the adolescent age group predominated the study population, it is more likely to be anxiety and depressive disorder which is consistent with global trend.

We equally observed a statistically significant ( $p=0.030$ ) differences in the pattern of mental health disorders between males and females. Whilst the commonest mental health disorders amongst the males was Mental and Behavioural Abnormalities Secondary to Substance use (MABD) (7.8%), followed by Schizophrenia (6.7%), anxiety disorders were the commonest amongst females (7.6%), followed by depressive disorders (6.6%). Our observations contrast with the report of a previous study which found no difference in the prevalence of substance use disorders between men and women, though men are more likely than women to be substance abusers [48]. However our findings agrees with the findings of a previous study which showed that males were more likely to be diagnosed with substance use disorders and antisocial personality disorders compared to women, whilst women were more diagnosed with depressive anxiety disorders compared to males [49]. Our observation also agreed with a previous study which found more males than females on treatment for mental health disorders secondary to substance abuse [50].

Whilst there is no gender difference in the prevalence of schizophrenia, females usually have late onset of the disease with peak age of onset between 25 to 30 years and 45 years [51].

This probably explains why we found more males with schizophrenia compared to the females, since their age of onset is earlier than that of the females. The onset of anxiety and depressive disorders peaks during adolescence and early childhood, with females being at significantly greater risks than males [52]. Females are said to have twice the life time rates of depression and most anxiety disorders [52]. Our study agrees with this observation because we found more females with anxiety and depressive disorders compared to the males. Other studies also had similar observations [53].

More than half of all psychiatric illnesses are said to begin by the age of 14 years [54]. For instance, the average age of onset of schizophrenia is the late teens to early twenties and it is rare before the age of 12 years [51]. This probably explains why the age group 15 to 18 years had the highest proportion of most of the psychiatric diagnosis in this present study. On the other hand, diseases like ADHD, learning disability, enuresis and speech impairment which are commonly diagnosed in early child hood [55] were commoner in the age group 10 years and below in this study.

## 5. CONCLUSION

The prevalence of mental disorders is high among school age children in Port Harcourt. The age group 15-18 years was the most affected. The commonest mental disorders were anxiety and depressive disorders. Well-coordinated mental health services should be inculcated into the School Health Programmed in Nigeria.

## CONSENT AND ETHICAL APPROVAL

Consent for the study was obtained from the research ethical committee of the hospital. Medical case notes of all patients who fell within the ages under consideration seen in the clinic from 2015 to 2019 were retrieved and thoroughly reviewed.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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