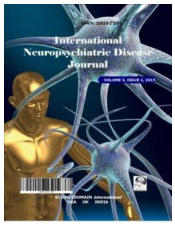

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Clinical Profile of Early Onset Psychosis in a Nigerian Sample

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Authors' contributions

This work was carried out in collaboration between all the authors. Authors AII and BAO designed the study wrote the protocol and coordinated the chart review. Author AII performed the statistical analysis, managed the literature search and wrote the first draft of the manuscript with assistance from author BAO. All authors approved the final manuscript.

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ABSTRACT

Aims: This study assesses the clinical profile of children and adolescents with psychotic disorders presenting to a psychiatric facility in Lagos, Nigeria.
Study Design: The study design was a retrospective chart review.
Place and Duration of Study: The study was conducted at the largest child psychiatric facility in Nigeria, the Child and Adolescent center of the Federal Neuro-Psychiatric Hospital, Yaba, Lagos, from October to December 2011.
Methodology: Patients (n=168) with early onset psychotic disorder presenting to the facility within a two year period (September 2009 to August 2011) were reviewed. Using a pro-forma containing variables of interest derived from a literature review of the research subject, the case notes of all children and adolescents with psychotic disorder presenting to the facility were reviewed to determine their presentation, clinical characteristics and diagnostic subtypes. Diagnoses were according to the ICD-10 criteria.

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Results: Males (56.5%) out-numbered females and the mean age of the sample was 15.3 (±3.6) years. The age at onset of psychotic disorder ranged from 6 to 18 years with a mean age of 14.2 (±2.6) years. Onset of psychosis was described as gradual/insidious by 47% and abrupt/acute by 53%. About one out of five (20.8%) had history of birth complications while 19% had delayed attainment of developmental milestones. Insomnia (49.4%), auditory hallucination (48.8%), irrational speech (40.5%) and aggressive behavior (33.3%) were the most prevalent symptoms. The most common axis I diagnoses was schizophrenia (36.9%), followed by organic psychosis (25%) and acute psychotic disorder (19.6%).

Conclusion: Our findings indicate the need for early intervention in psychosis and planning of services to meet the needs of young people with psychotic disorders in Nigeria. The relative preponderance of obstetric complication and organic psychosis highlights an unmet need for improved obstetric care with consequent reduction in psychosis

Keywords: Early onset psychosis; children; adolescents; schizophrenia; diagnosis; Nigeria.

1. INTRODUCTION

The concept of early-onset psychosis has been a subject of interest for many years [1] for different reasons. Firstly, differentiating 'normal' from 'abnormal' in young people is a formidable task since they are subject to successive but frequently variable developmental changes. 'Normality' is known to evolve and varies with age and socio-cultural environment. Furthermore, differentiating psychotic symptoms from fantasy world may be difficult in children who are yet to attain complete development of the ego boundary. Therefore early onset psychosis (EOP) often presents diagnostic challenge, with high rates of misdiagnosis and missed diagnosis [2-4]. Interest in childhood psychoses predates the 19th century when Maudsley described, 'Insanity of early life' in the book 'Pathology of mind' [5]. Since then, the concept of early onset psychosis has not ceased to attract a lot of controversy regarding its diagnostic clarity [6]. Contrary to earlier divergent perspectives, it has now been established that children like adults also experience psychoses [7,8]. Early onset psychosis represents a major public health problem ranking as the third most disabling condition worldwide and posing enormous burden, both in terms of economic cost and human suffering [9].

Psychosis may be defined as impairment in the ability to differentiate between reality and false perceptions or beliefs. It encompasses positive symptoms (excess of normal functions) such as hallucinations, delusions, abnormalities in the thought process and disorganized behaviour, or negative symptoms (absence of normal function) such as affective flattening, alogia, avolition, amotivation and anhedonia [8,9,10]. Early-onset psychosis is the onset of these psychotic symptoms prior to the age of 18 years [8]. The prevalence of EOP ranges from 0.1% to 1% in community samples, and 4-8% in clinical populations [11,12]. The onset of psychotic disorder in childhood or adolescence negatively impacts on development, functioning, education or vocational progression, and quality of life in affected young people [12,13].

Early onset psychosis represents a heterogeneous entity constituted by varying symptom clusters and diagnostic categories, encompassing subgroups of psychopathological states. These commonly include schizophrenia, schizophreniform disorder, schizoaffectve disorder, delusional disorder, brief psychotic disorder and affective disorders [14]. Un-differentiation of symptoms across different nosological categories may contribute to the diagnostic uncertainty in EOP [15]. Furthermore, the onset of psychotic symptoms in children may be a precursor to a variety of possible emerging psychotic disorders, thus limiting diagnostic stability [16].

Culture and environmental contexts may influence the manifestation of psychotic symptoms in children and adolescents. However, there is dearth of information on the pattern of presentation of early-onset psychosis in Africa. Previous authors have emphasized the need for further research to clarify the phenomenology of EOP thereby facilitating diagnostic accuracy and expediting the initiation of appropriate therapy. This is vital considering the negative impact of long duration of untreated psychosis on outcomes. It is also essential in service planning to meet the needs of young people with psychosis. This study therefore assessed the clinical profile of children and adolescent with psychotic disorders seen at a psychiatric facility in Lagos, Nigeria.

2. METHODS

The study was conducted at the largest child psychiatric facility in Nigeria, the Child and Adolescent center of the Federal Neuro-Psychiatric Hospital, Yaba, Lagos established in 1999. Though a tertiary center, it is also a walk-in clinic. The Hospital has no defined catchment area but draws its clientele majorly from Lagos State and neighbouring parts of South West Nigeria. Currently an average of 20 new patients is registered weekly and about 100 children attend the out-patient clinic weekly for follow-up.

The study design was a retrospective chart review. Using a pro-forma containing variables of interest derived from a literature review of the research subject, the case notes of all children and adolescents with psychotic disorder presenting to the facility between a 2 year period (September 2009 and August 2011) were reviewed to determine their presentation, associated characteristics and diagnostic subtypes. At initial presentations, all cases were seen by Senior Residents in Psychiatry and Consultant Psychiatrists (diagnoses was according to the ICD-10 criteria). Diagnosis of organic psychosis was made (Section F06 of ICD 10) when the mental disorder is attributable to an independently diagnosable cerebral disease, brain damage, dysfunction or systemic disorder. Apart from comprehensive clinical assessment, ancillary radiological or laboratory investigations were utilised when indicated to arrive at the diagnosis. Case notes were excluded if variables of interest were missing or if documentations from the parent/guardian or regular caregiver were incomplete. Clinical data obtained from the case-notes included axis 1 diagnoses at presentation, age at onset of psychoses, pattern of symptoms/psychopathology, history of obstetric complications, developmental milestone (delayed or normal), and mode of onset (acute or gradual). Presentations were regarded as acute if symptoms were noticeable and regarded as abnormal by the informant within two weeks of onset of symptoms. Demographic data included age and gender of the patients.

3. RESULTS

A total of 830 patients presented to the facility within the two year period of review, out of which 168 (18.6%) had onset of psychotic disorder prior to the age of 18 years. Males (56.5%) out-numbered females among patients with early-onset psychosis. The mean age of the sample was 15.3 (±3.6) years. The age at onset of psychotic disorder ranged from 6 to 18 years with a mean age of 14.2 (±2.6) years. Onset of psychosis was described as gradual/insidious by 47% and abrupt/acute by 53%. About one out of five had history of birth complications (20.8%) while 19% had delayed attainment of developmental milestones (Table 1).

Table 1. Clinical characteristics of the sample

Variable	n	%
Mode of onset		
Acute	89	53.0
Gradual	79	47.0
Birth complication		
Absent	133	79.2
Present	135	20.8
Predominant symptoms		
Positive	122	72.6
Negative	46	27.4

The most common axis I diagnoses among patients with EOP at presentation was schizophrenia (36.9%), followed by organic psychosis (25%) and acute psychotic disorder (19.6%). Only 1.8% were diagnosed with (Table 2) substance use disorder, specifically cannabinoid use disorder. The most common psychopathology was auditory hallucinations (48.8%) followed by irrelevant speech/formal thought disorder (40.5%), aggressive behaviour (33.3%) and delusions (31.1%). About one out of (Table 3) five children had restlessness (22%) and social withdrawal (22.6%). A gradual mode of onset of psychosis was significantly associated with history of birth complications, delayed developmental milestone, predominant negative symptoms and earlier age at onset of illness (Table 4).

Table 2. Diagnostic subtypes of early onset psychosis among the sample

Variable	n	%
Schizophrenia	62	36.9
Depression	8	4.8
Bipolar affective disorder	7	4.2
Organic mental disorder	42	25.0
Acute Psychotic disorder	33	19.6
Unspecified psychosis	11	6.5
Substance use disorders	3	1.8
Schizoaffective disorder	2	1.2

Out of the 35 patients with history of birth complications, 21 (60%) had organic psychosis, 10 (28.6%) had schizophrenia, while two each

presented with acute psychosis (5.7%) and unspecified psychosis (5.7%).

Table 3. Symptom profile of the sample

Symptoms	n	%
Withdrawal	38	22.6
Restlessness	37	22.0
Insomnia	83	49.4
Aggression	56	33.3
Auditory hallucination	82	48.8
Visual hallucination	33	19.6
Delusion	53	31.1
Irrational speech	68	40.5

4. DISCUSSION

This study reviewed the clinical profile and correlates of early-onset psychotic disorder among patients presenting to a child and adolescent psychiatric facility in Lagos, Nigeria over a two year period. We found few studies to directly compare our data with due to dearth of research on this subject in sub-Saharan Africa and also methodological differences.

Patients with early onset psychosis constituted about one fifth of the total presentations to the facility within the study period. This rate is higher than findings among western populations where children and adolescents with psychosis constitute about 2 to 5% of child and adolescent psychiatric clinic attendees [17,18]. The prevalence of psychosis in our clinical population is unlikely to be a true reflection of the epidemiological trend of early onset psychosis in the general population. Early-onset psychosis may be over-represented in our clinical sample because of the tendency to seek orthodox treatment for the more overt symptoms of psychosis rather than relatively inconspicuous non-psychotic symptoms in our environment [19].

There were more males than females in our sample reflecting the known epidemiological trend of a greater male preponderance of psychosis in early life, as compared with a fairly balanced gender ratio in adulthood [20,21]. The mean age of the patients in the current sample (15 years) is congruent with the available data on age of onset of early-onset psychosis. Studies have shown that psychosis is rare in childhood, and incidence of early onset psychosis is usually delayed till puberty or mid-adolescence [21,22]. For instance, in a study of early onset psychosis by Werry et al. [21] the sample had a mean age of about 15 years. Similarly, the majority of patients with early onset psychosis studied by Balliger et al. [23] had onset of psychosis between ages of 15 to 18 yrs.

Schizophrenia was the commonest early-onset psychotic disorder in this study accounting for nearly a third (29.2%) of patients with early onset psychosis. This is a contrast when compared with results from western populations whose samples were majorly constituted by patients with schizophreniform disorder and unspecified psychotic disorder at baseline assessment [24-26]. To some extent, the discrepancies may be an artefact of methodological differences such as the point in the course of illness during which the patients were recruited considering the evolution in the diagnosis of EOP. For instance in the Castro-Fornielle study, patients with duration of psychosis above 6 months were excluded. However, a study conducted in the U.S by Balliger et al. [23] found schizophrenia to be the most common diagnosis [26].

Table 4. Association between mode of onset and clinical parameters

Variable	Acute onset n (%)	Gradual onset n (%)	X^2	P
Birth complication				
Yes	11 (34.1)	24 (68.6)	8.240	0.004
No	78 (58.6)	55 (1.4)		
Developmental milestones				
Yes	6 (18.8)	26 (81.2)	18.588	<0.001
No	83 (61.0)	53 (39.0)		
Age of onset				
Very early	10 (27.0)	27 (73.0)	12.826	<0.001
Early	79(60.3)	52 (39.7)		
Predominant symptoms				
Positive	78 (63.9)	44 (36.1)	21.478	<0.001
Negative	11 (23.9)	35 (76.1)		

However, our results converge with findings from previous studies conducted in similar settings to ours; such as a retrospective study of patients with early onset psychosis presenting to a psychiatric hospital in Abeokuta, south-West Nigeria Okewole et al. [27] reported that schizophrenia was the commonest diagnosis. Similarly, schizophrenia predominated a clinical sample of adolescent-onset psychoses study in South Africa [28].

Children and adolescents with organic psychotic disorder constituted 20% of the current sample, a rate far higher than that reported in developed settings. As a result of poor access to optimal maternal and child health care facilities in Nigeria, children are vulnerable to obstetric complications, infections and other peri-natal insults which may eventuate in structural brain lesions and become a potential focus for an organic psychotic disorder. Inadequate treatment and pandemicity of infectious diseases may also contribute to the burden of organic mental disorders. The variance may also be attributed to the recruitment procedure of the majority of western studies which excluded children with underlying pre-existing neuro-developmental problems.

About one fifth of the patients with early onset psychosis in the current study had history of birth complications (19.5%), lag in the attainment of developmental milestones (16.9%) and pre-morbid abnormalities (18.9%) [29]. This is in keeping with the extant evidence on the role of biological factors in the aetiology of early-onset psychosis. The early-onset of the disorder and its more severe nature is adduced to a stronger biological disposition [30,31]. The principal biological factors implicated in the etiology of EOP include genetic, neurobiological and neuro-psychological factors. However, some authors have argued that EOP may merely represent an 'early tail of the age at onset distribution' without constituting any differential etiological category or associated implication [32].

In the current sample, children and adolescents with psychotic disorders demonstrated pattern of core symptoms qualitatively comparable to the symptom profile in adults with psychotic disorders. This finding re-echoes reports by previous authors showing similarities with the profile of adult psychotic symptoms. Other common symptoms in the current sample including delusion, irrelevant speech/formal thought disorder and disorganized behaviour substantiates findings of previous research [22,33,34].

Risk factors like obstetrics complication in the perinatal period are central to the neuro-developmental hypothesis of schizophrenia [35]. An earlier study in Nigeria done on children who suffered obstetric complications revealed an increased risk of subsequent onset psychotic disorders especially schizophrenia in the future [36]. Bramon and Murray in their model for schizophrenia concluded that subtle alteration in brain development caused by genes or obstetrics complication play a major role in the development of psychosis as demonstrated by a cohort study which reported delayed developmental milestones especially in coordination and language, poor interpersonal relationships and social withdrawal [37]. Further studies have documented that premorbid impairments is more common and more severe in early onset psychosis than adult onset disorder [38-40].

Holis in 2003 also reported that early onset schizophrenia was associated with a greater level of impairment in premorbid traits than other child and adolescent onset non schizophrenic psychotic disorders as those with schizophrenia are more likely to have experienced pre-morbid social impairment [41].

In the current study, only 1.8% of the patients with early onset psychosis were diagnosed with substance use disorders, specifically cannabinoid use disorder. The prevalence rate is remarkably higher in Europe, North America and Australia where one-sixth to half of patients with early onset psychosis were estimated to have substance use disorders [42-49]. In Nigeria, whereas substance use has been shown to be prevalent among adolescents in the general population [50-51], substance use disorders tend to be under-represented in child and adolescent psychiatric clinic samples [27,52]. The low rates of substance use disorder in our study sample may be attributed to a number of factors including under-detection due to non-disclosure, the younger age of the sample and non-availability of in-patient substance use treatment program within the study location. Patients or family members may conceal history of substance use in order to avoid perceived judgmental response, social sanctions and legal consequences. Furthermore, in comparison to the western studies reporting higher prevalence of substance use, our sample consisted

predominantly of younger adolescents who had not reached peak age of onset of substance use disorders. In addition, some of the western studies cited above were conducted in settings with established in-patient treatment program for substance use disorders, which may lead to over-representation of substance use disorders in their sample. Finally, the retrospective nature of our study may lead to under-representation of patients with substance use disorders. A number of models have been postulated to explain the association between substance use and psychosis including precipitation of psychosis by substances especially cannabis, attempt to self-medicate psychotic symptoms with use of substances, common causal pathways, and bi-directional relationships [53,54]. Considering the negative implications of substance use on outcome in psychosis, detection and management of substance use is imperative in early onset psychosis [55]. Identification could be improved with high index of suspicion and the use of ancillary investigations such as screening of urine for psycho-active substances [56].

Our study is limited by its retrospective design and consequently the non-utility of standardized instruments in the ascertainment of the reported clinical variables. Furthermore, the clinic based data may have limited extrapolation to patients in the community. However we have provided important information on a previously under-researched subject in sub-saharan Africa.

5. CONCLUSION

In this retrospective review of early onset psychosis in a Nigerian clinical sample, schizophrenia was the most common diagnostic subtype. The majority had an acute mode of onset of psychosis and positive symptoms predominated. Compared to previous studies, patients with birth complications were over-represented in the current sample with consequent higher rates of organic psychosis. These findings indicate the need to improve obstetric care and design strategies for early intervention in psychosis.

CONSENT

It is not applicable.

ETHICAL APPROVAL

Ethical approval was obtained from the Research and Ethical Committee of the Federal Neuropsychiatric Hospital Yaba Lagos.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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