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Original article

A study of symptom profile and diagnostic break up of psychotic illness among children and adolescents in a tertiary care hospital

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Abstract

Aim: The study aims to delineate the symptom profile of children and adolescents diagnosed with psychotic illnesses (F20-F29 as per ICD 10 diagnostic criteria). It also attempts to study the diagnostic break-up among psychotic subgroup.

Methods and Material: A 3-year retrospective chart review of children and adolescents registered with child guidance clinic in a general hospital psychiatry setting, Chennai. The study uses a semi-structured proforma that attempts to evaluate socio-demographic details, clinical data about illness, symptom profile, diagnosis, comorbidity, and treatment plan.

Results: The total number of records fulfilling the inclusion criteria was 75. Adolescent girls constituted around 52% of the total sample, and 48% were adolescent boys. The diagnostic subgroup that was predominant in our sample was acute polymorphic psychosis without symptoms of schizophrenia (30.7%) followed by unspecified nonorganic psychosis (26.7%) and schizophrenia (21.3%). The predominant symptoms cluster in our group was that of behavioural and perception symptoms with the least of catatonic and negative symptom clusters. Risperidone was the most commonly used antipsychotic in almost 80% of cases, as documented in clinical literature.

Conclusion: The study finding helps to delineate the myriad clusters of symptoms among early-onset psychotic illness. The varied symptom profile highlights the need to identify complex presentation at an early stage, need to screen and follow up on the course of nonspecific symptoms and to determine the treatment duration appropriately.

Keywords: symptom profile, psychosis, children and adolescents, diagnostic subgroup

Introduction

Early-onset psychosis represents a heterogeneous group characterized by varying symptom clusters and diagnostic categories. It encompasses various subgroups of psychopathological states, and phenomenology. Studies report that the prevalence of early-onset psychosis ranges from 4-5% of all schizophrenic disorders [1]. Very early-onset schizophrenia (<12 years of age) is rare, with a prevalence of around 1-5 per 10,000 in most studies.

A broader definition of psychosis generally includes symptoms such as disorganized speech or behaviour, negative symptoms such as alogia, amotivation and anhedonia, cognitive, and mood symptoms [2]. The DSM-IV-TR applies the same diagnostic criteria for psychotic disorders in children and adolescents as for adults. The most common manifestations in young people with psychosis are hallucinations, impaired functioning, flattened affect, and social withdrawal [3,4]. But the typical illness course might start with a prodrome, with nonspecific symptoms such as low mood, anxiety, social withdrawal, anergia, eccentric or suspicious behaviour, cognitive and functional deterioration.

On the interview, youth with schizophrenia may be incoherent, have loosening of associations or tangentiality, be over inclusive, or demonstrate thought-blocking, echolalia, or neologisms [5]. Unlike adults, children with psychosis rarely demonstrate waxy flexibility or become catatonic. On the other hand, they can be emotionally reactive or agitated [6].

Risk factors for schizophrenia in adolescents have been well studied. These factors include positive family history, birth complications, advanced parental age, childhood developmental abnormalities, early infections, subthreshold psychotic symptoms (such as brief, unclear auditory hallucinations), and functional decline. Impaired concentration and cognitive impairment are likely to accompany psychosis in children. Similarly, shyness, social withdrawal, and impairment in adaptive social behaviour were studied as possible signs of impairment in premorbid functioning [7].

The significance of diagnosing early-onset psychosis relies on the prevention of impact on cognitive, emotional, academic, and social skills development. Early-onset disorders show a continuity of clinical and biological characteristics with adult-onset disorders.

Hence, a comprehensive psychiatric assessment should include interviews with the child and his or her family members, review of records, information gathered from other involved adults (including a detailed description of the presentation and course of the psychotic symptoms), attention to developmental delays, a family psychiatric history, a history of abuse and/or neglect, and a mental status examination [8]. Given the phenomenological variation in symptom clusters, we decided to look at the pattern of symptom profile and diagnostic subgroup in our setup.

Methods

The study was a descriptive retrospective chart review of adolescents with a diagnosis of the psychotic subgroup as per ICD 10 (F 20-29). The charts of 3 years were reviewed from the child guidance clinic of the department of psychiatry in a general hospital psychiatry setting. Participants included in the study were children and adolescents aged less than 18 years of age who were diagnosed with ICD 10 diagnostic categories between F20–F29 (Schizophrenia, schizotypal and delusional disorders) during the period January 2016-December 2018.

The child guidance clinic is a weekly, specialty clinic with a team of psychiatrists, psychologists, and social worker, focusing on the mental health problems in children and adolescents. The patients, who were 18 years of age or below, presenting at the general psychiatry out-patient department, are referred to the child guidance clinic for a detailed evaluation. The clinic also evaluates children and adolescents referred from Pediatrics department for psychiatric evaluation. The diagnosis is made after thorough clinical evaluation, and psychological assessments are done as required.

The relevant information was collected on semi-structured proforma prepared by the research group, which includes socio-demographic details, symptom profile, risk factors, diagnostic subgroup, and treatment details. The case sheets which had complete information were taken for the study. Among the risk factors documented, birth history, developmental delay, family history of mental illness was looked into. The symptom profiles were further categorized into behavioural (irritability, anger outbursts, assaultive behaviour, withdrawn behaviour, restlessness, abusive and wandering tendency), biological symptoms (disturbance in sleep and appetite), perception disturbances (hallucinations), emotional (crying, fear, anxiety, emotional lability), thought disturbance (suspiciousness, delusion, preoccupation, persecutory ideas, thought broadcast, suicidal thoughts), catatonic symptoms (posturing and rigidity), negative symptoms, academic (decline, decreased concentration and school refusal) and self-care decline. The symptom classification was based on the categorisation of psychotic symptoms into positive symptoms (including hallucinations and delusions, negative symptoms (such as emotional apathy, lack of drive, poverty of speech, social withdrawal and self-neglect), disorganisation symptoms (speech and behaviour) and catatonic symptoms. We subdivided the positive symptoms into perception and thought disturbances, disorganised symptoms into behavioural subgroup, negative symptoms with additional category for self-

neglect and non-specific symptoms which can be seen in prodrome into emotional and academic clusters [9,10].

The study also looked at the diagnostic change as recorded in the case sheets from initial diagnosis during the study period. Treatment details, as recorded, were documented. Relevant investigations (Electroencephalogram (EEG)) and psychological assessments (Intellectual Quotient (IQ)) were documented, as recorded in the case sheets.

Results

The total number of children and adolescents who fulfilled the inclusion criteria and whose complete data was available was 75. There were a total of 6 case files where the history of present illness was not elaborated and hence details related to onset of illness, stressful event and symptom elaboration could not be obtained from those case sheets.

The age range of the population was between 12-18 years, with almost 53.3% of the sample in the age range of 16-17 years of age. Females constituted 52% of the total sample and males 48%.

The onset of illness was associated with a stressful life event only in 13.3% of patients, while the majority had no stressor preceding the onset. The onset of psychotic symptoms at the time of the initial presentation was acute in almost 28%. Longer duration of illness was seen in almost 21.3% of the total sample. Birth and developmental history was not significant in the majority of the cases with difficult labour identified in 4% of the populations and developmental delay in 6.7% (Table 1).

Physical and psychiatric comorbidity was less observed in our sample except for the high rate of Intellectual disability associated with psychosis. Among the physical illnesses, seizure disorder and hypothyroidism were observed in 2 patients, and Obsessive Compulsive Disorder (OCD) was seen in 1 patient. 10.7% of the sample population had a mild-moderate

intellectual disability, whereas there was a clinical suspicion of compromised intelligence in 20% based on history and higher cognitive functions, but was not quantified.

A family history of psychosis was evident in 21.3% of the population. Psychosis in the first-degree relative was seen in 8 out of 16 (10.7%) (Table-1).

Table-1: Sociodemographic and Illness variables

Variable	**N ((%)**
Age	
12-13 years	08(10.6 %)
14-15 years	14(18.7%)
16-18 years	53(70.6%)
Sex	
Male	36 (48%)
Female	39 (52%)
Duration of illness	
<2 weeks	21 (28%)
2-4 weeks	18 (24%)
1- 3 months	9 (12%)
3-6 months	1 (1.3%)
6 months-1 year	10 (13.3%)
> 1 year	16 (21.3%)
Birth and Development factors	
Difficult labour	2 (2.7%)
Developmental delays	6 (8%)
Low birth weight	2 (2.7%)
Febrile seizures	2 (2.7%)
Stressful event before onset	
Present	10 (13.3%)
Absent	65 (86.7%)
Intellectual disability comorbidity	
Average	48 (64%)
Mild	6 (8%)
Moderate	2 (2.7%)
Unspecified	4 (5.3%)
Physical illness comorbidity	
Neurodegenerative disorders	1 (1.3%)
Seizure disorder	2 (2.7%)
Hypothyroidism	2 (2.7%)
Other physical illness	4 (5.3%)
Family history of psychosis	
Present	16(21.3%)
Absent	59 (78.7%)

Diagnostic breakup wise, acute polymorphic psychosis without symptoms of schizophrenia constituted the major subgroup (30.7%) followed by unspecified nonorganic psychosis (26.7%) and schizophrenia (21.3%).

Among the categorized symptom profiles, behavioural symptoms constituted 68% of the total symptomatology. Almost 92 % of the sample population had biological symptoms. Thought and perception disturbances were observed in 66.7 and 78.7% of the patients. The decline in self-care was observed in 34 (45.3%), catatonic symptoms in 12%, and negative symptoms in 9.3% (Table-2).

Table 2: Diagnostic subgroup, symptom profile, and treatment

Variable	**N (%)**
Diagnostic subgroup	
F 20	16 (21.3%)
F 20.2	1 (1.3%)
F 20.3	1 (1.3%)
F 23.0	23 (30.7%)
F 23.1	6 (8%)
F 23.9	8 (10%)
F 29	20 (26.7%)
Symptom profile	
Behavioural	51 (68%)
Emotional	33 (44%)
Perception Auditory hallucination Visual hallucination Tactile hallucination Hallucinatory behaviour	59 (78.7%) 12 (16%) 3(4%) 2 (2.6%) 42 (56%)
Thought Delusions Thought broadcast	50 (66.7%) 22 (29.3%) 2 (2.6%)
Catatonic	9(12%)
Self-care	34 (45.3%)
Biological	69 (92%)
Negative symptoms	8 (10.7%)
Treatment Risperidone Olanzapine Aripiprazole Quetiapine	 60 (80%) 6 (8%) 8 (10.7%) 1 (1.3 %)

EEG was the only investigation done in 16 subjects, and it was normal. The need for imaging was not required with the presentation of symptoms.

Since it was a three-year retrospective study, we also noted that the initial diagnosis of acute psychosis underwent a diagnosis change in 4 patients during follow up to depressive illness and bipolar disorder. Risperidone was the most commonly used antipsychotic drug in the sample population (in almost 80% of the cases)

Discussion

The study is a retrospective chart review and attempts to delineate the symptom profile and diagnostic subgroup of children and adolescents with psychotic illness. The major diagnostic subgroup in the sample population was acute polymorphic psychosis without symptoms of schizophrenia, followed by unspecified nonorganic psychosis. Children and adolescents presenting with psychotic symptoms can fit into broader diagnostic categories and includes primary psychotic disorders such as schizophrenia and schizoaffective disorder and psychotic mood disorders such as bipolar mood disorder and psychotic depression. Our study population included children and adolescents only within the psychotic spectrum. The prevalence of psychosis in clinic-based studies in India was reported to be around 2.4-2.7% [10].

Diagnosis

Our study sample had schizophrenia and schizophrenia-related disorders as the most common diagnostic subgroup in almost 73.3% of the population. In a similar study, they observed that schizophrenia and schizophreniform psychosis were observed in 51.4% and unspecified psychosis in 31.4% of the sample population [11].In a US national study of childhood-onset psychosis [12], 13% of patients initially diagnosed to have schizophrenia were later reclassified as psychotic disorder not otherwise specified as the criteria are not met adequately.

Demographic characteristics

The age of onset in our population was predominantly in late adolescence (70.6%), and none of them had an onset below 11years of age. It has been observed that prepubertal presentation of schizophrenia and other psychotic disorders is relatively rare, with only 0.1-1% having onset before 10 years of age and less than 4% presenting before 15 years of age [13].

Gender representation was almost equal in our sample, whereas other studies have found male preponderance in early-onset psychosis (ratio of 2:1) [14,15]. Illness duration was prolonged in almost 16 subjects (21.3%), which reflects the delay in initial contact of psychiatric services in this subgroup of population and the presence of at-risk and nonspecific symptoms of psychosis, which might have delayed the diagnosis. As observed in another study, the mean duration of psychotic symptoms before initial treatment was 52 weeks, preceded by a substantial pre-psychotic period. Duration of illness before treatment is significantly associated with time to remission and level of remission [16].

Stressor

A psychosocial stressor was observed in 13.3% of the sample. Another study observed that 14.3% of the sample had stressors associated with the onset of psychotic illness [10]. Change of school, examination, and death of relatives were observed in that study. Our study found a similar finding with additional stressors reported being illness in a family member, environmental change, and bullying.

Risk factors

Among the risk factors studied, we looked at obstetric factors and family history of mental illness. It is a proven fact that environmental factors may potentially interact with biological risk factors to mediate the timing of onset, course, and severity of the disorder in this

subgroup of the population. A family history of psychosis was seen in 21.3%, similar to that of other studies [11,15,17]. Our study also observed that family history of psychiatric illness in first, second, and third-degree relative were 28%, 26.7%, and 1.3% respectively.

Speech and language delay, as well as motor development deficits, have been observed in studies on childhood-onset schizophrenia, be it the Maudsley early-onset schizophrenia project or the NIMH study [18]. A meta-analysis of cohort studies investigating the association of obstetric complications and schizophrenia found that pregnancy complications, abnormal fetal growth and development, and delivery complications were all associated with increased schizophrenia risk [19]. Our study found that difficult labour and low birth weight were seen in 2.7% and 8% of the sample population respectively.

Comorbidity

Intellectual disability was seen as the common comorbid condition similar to the finding in another study (14.3%). Previous Indian and international studies suggest that at least 10-20% of children with early-onset schizophrenia have their IQs in the borderline to the mentally retarded range [15,20]. Among the physical comorbidity, seizure disorder and hypothyroidism were observed in negligible cases in our study.

Symptom profile

Cognitive deficits after the onset of psychosis have been found to interfere with the academic performance, which can lead to school refusal and school dropout [21]. In our study, academic decline was seen in a major proportion of individuals as one of the presenting symptoms (45.3 %). This highlights the importance of early identification as a prolonged course of illness can result in impairment in all areas of functioning.

Our study looked at the categorized clusters of symptoms that were predominantly seen in patients with psychosis. It is a well-documented finding that auditory hallucinations were the

most consistently reported symptom in previous studies on early-onset psychotic disorders. Delusions were found in 58% and auditory hallucinations in 82% of the sample and visual hallucinations in 30% in an Indian study, while others documented 20% of patients with delusions and 17% with hallucinations [15,22]. Our study sample had hallucinations in 22.6% and delusions in 29.3% of patients.

Our sample population had predominantly perceptual symptom clusters followed by behavioural and thought symptom clusters. Self-care was impaired in almost 34 patients (45.3%). Catatonia (12%) and suicidal behaviours were less common in accordance with the available literature on early-onset psychosis [23]. Sleep disturbance was a frequent presentation almost in 34 patients (45.3%), similar to previous studies [24,25].

Antipsychotic medications are considered as the first-line treatment for patients with EOS. However, these are recommended to be used along with psychosocial interventions. In a systematic review, it was found that all antipsychotics are superior to placebo, but only three antipsychotics, i.e., olanzapine, risperidone, and molindone were associated with a statistically significant reduction in total PANSS scores at six weeks [26,27,28]. As per the guidelines, we used risperidone as the first choice of antipsychotics in our population (80% of the patients).

There are few limitations in our study. It is a retrospective chart review of hospital-based sample. The sample size also limits the generalizability of findings. The retrospective design also limits the severity assessment and detailed elaboration of symptom profile. The study did not attempt to include other nonpsychotic diagnostic subgroup. This would throw more light on the varied presentations of different psychiatric disorders in children and adolescents who present with psychotic symptoms or disorganized behaviour at illness onset.

To conclude, the study throws light on the importance of varied clinical presentation of early-onset psychosis and the need to screen for nonspecific symptom presentation in this

population. Detailed history taking, developmental screening, family interviewing are all integral components of identification of early-onset psychosis. There is also a need to assess attenuated symptoms and brief limited intermittent psychotic symptoms, which might be part of the prodrome. Age-specific clinical presentation and imaging would emphasize the neurobiological correlates associated with psychosis.

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