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Schothorst, P.F.; Emck, C.; van Engeland, H.

published in

Comprehensive Psychiatry
2006

DOI (link to publisher)

[10.1016/j.comppsy.2006.03.003](https://doi.org/10.1016/j.comppsy.2006.03.003)

document version

Publisher's PDF, also known as Version of record

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citation for published version (APA)

Schothorst, P. F., Emck, C., & van Engeland, H. (2006). Characteristics of early psychosis. *Comprehensive Psychiatry*, 47, 438-42. <https://doi.org/10.1016/j.comppsy.2006.03.003>

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Characteristics of early psychosis

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Abstract

There is little research on characteristics related to course and prognosis of early-onset psychosis. The present article aims to advance our knowledge of this disorder for the purpose of proper diagnosis and treatment. It focuses on premorbid and prodromal characteristics, treatment history, symptoms and classifications, and differences between subgroups with affective and schizophrenic psychosis.

A chart review was constructed to study a group of 129 subjects (12–18 years) with psychotic symptoms referred to the University Medical Center in Utrecht.

The group was characterized by early—but nonspecific—treatment, developmental problems (mostly social), and clear prodromal symptoms. Drug abuse, depressive symptoms, and suicidal behavior were also frequent. Male sex, a relatively long prodromal phase, school problems, and drug abuse were more indicative of the schizophrenic subgroup. Introversion was characteristic for boys with schizophrenia. Classifications, however, were not stable.

These findings suggest that early recognition of psychosis can be enhanced in health and youth care facilities. Careful examination of the prodromal phase seems helpful to differentiate between schizophrenic and affective psychosis.

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1. Introduction

The prevalence of psychosis in youth is approximately 1% in community samples [1] and 4% to 8% in referred samples [2,3]. In contrast to childhood-onset schizophrenia, psychoses in adolescents (12–18 years old) have received limited scientific attention. Childhood-onset or very early-onset schizophrenia arising before the 13th year has been well documented. These children have particular premorbid features and exhibit symptoms that are indistinguishable from schizophrenia in adults [4–9]. Early-onset schizophrenia arising between the 12th and the 18th year is also characterized by poor premorbid functioning [10–12]. However, it is not yet clear if this also applies to adolescents with affective psychoses. The symptoms of affective psychoses are very similar to that of schizophrenic psychoses in this age group. This leads to a high percentage of misdiagnoses [12–20] and limited stability of the classifications [21]. What is well established is that boys

more frequently have schizophrenia and girls frequently have affective psychoses [17].

All in all, there is still limited knowledge about the specific characteristics of early-onset psychoses. Research in clinical populations is therefore important. This study compares sex, socioeconomic status, family history, previous treatments, premorbid development, prodromal signs, symptoms, drug use, classification, and the similarities and differences in adolescent patients with an affective and those with a schizophrenic psychosis.

2. Method

The study group consists of 129 patients between 12 and 18 years of age, referred to the outpatient, day, or inpatient clinic of the University Medical Center Utrecht (UMCU) with psychotic complaints from 1984 to 2000, and with a diagnosis of psychotic disorder made by the child and adolescent psychiatrist of the UMCU. The data were collected via an extensive chart review. For this purpose, a manual was designed with a description of the variables and with guidelines for scoring. The interrater reliability was determined using 2 independent raters unfamiliar with the

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cases and 20 randomly drawn files. Items with a Cohen κ lower than 0.60 were excluded from the analyses.

The data on socioeconomic status comprise the geographic background and educational level of the subjects [22]. The country of birth of the parents and the adolescents was used as the geographic background. Family history only considered reports of psychiatric complaints in the parents. Because family history was not systematically investigated at that time, possible details about other family members were not included in the study because of the limited reliability. The first treatment contact was defined as treatment by an institute for child and adolescent psychiatry or child/youth care, a remedial teaching setting, the general practitioner, or a social worker, involving developmental problems, psychosocial or psychiatric complaints. Data on intelligence were derived either from an intelligence test or from the clinical impression reported by the psychiatrist. Prodromal signs are described as specific changes in behavior preceding the onset of psychosis [23]. Positive, negative, depressive, and manic symptoms are described according to Werry and Taylor [21], and Harrington [24]. Suicidality is defined as the reported preoccupation with death or suicide, imperative hallucinations to commit suicide, suicidal actions, and suicide attempts. Drug use is assessed for lifetime presence and the report thereof by the patient and/or informants. Principal diagnoses are classified according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* or subsequently converted *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition* classifications [25]. Comorbidity is not included in the analysis. Professionals, who referred the subjects, determined the classifications on presentation while a child and adolescent psychiatrist of the UMCU made the diagnostic classifications at discharge from the UMCU.

Because we are interested in possible differences, 2 subgroups have been defined: a group with schizophrenia ($n = 36$) and a group with affective psychoses ($n = 40$). They are referred to as subgroup S and subgroup A. The last group consists of patients with bipolar disorder, depression with psychotic symptoms, and schizoaffective disorder. The small number of patients with a diagnosis of schizoaffective disorder ($n = 2$ at referral and $n = 8$ at discharge) did not allow for separate analyses of this group. Furthermore, schizoaffective disorder in adolescents has a relatively good prognosis resembling that of bipolar disorder [16]. Therefore, the schizoaffective patients were grouped with the affective disorder group. Post hoc analyses of data concerning premorbid functioning, prodromal symptoms, onset of psychosis, and first treatment contact did not reveal significant differences between the schizoaffective patients and the rest of the affective psychosis group. Data were analyzed with the help of SPSS (SPSS Inc, Chicago, Ill), using descriptive measurements, χ^2 test, and t test. Because drug use was only systematically investigated from 1995, the analysis of these data only includes those adolescents who presented after this time ($n = 79$).

Patients and their parents were informed on the collection and use of data in medical files. The chart review was approved by the local ethical board.

3. Results

3.1. General characteristics

The study group consists of 86 boys and 43 girls. The average age at referral to the UMCU is 16 years and 7 months. Of the adolescents studied, 104 (80%) were born in the Netherlands, 3 in Europe, and 22 outside Europe. The percentage of parents born in the Netherlands is the same. There was a family history in 26% (16% mood disturbances, 7% psychoses). The subgroups A ($n = 40$) and S ($n = 36$) show no differences in average age at presentation, geographic background, family history, or educational level of the parents.

3.2. Onset of treatment, prodromal symptoms, and psychosis

One hundred two (79%) of the adolescents had treatment before the onset of psychosis and 45 patients (35%) already had treatment before the prodromal phase. The subgroups S and A showed no differences in the mean age of onset of psychosis, onset of the prodromal symptoms, or first treatment contact (Table 1).

The mean interval between the first treatment contact and onset of the psychosis and between the onset of the prodromal symptoms and the onset of the psychosis was, however, longer in the schizophrenia subgroup than in the subgroup with affective psychoses. In contrast, adolescents with schizophrenia on average already have treatment contacts 2 months before the onset of prodromal symptoms, whereas in adolescents with affective psychosis, first treatment contact takes place on average 8 months after the onset of prodromal symptoms (Table 1).

3.3. Development and premorbid functioning

The distribution of intelligence in the study group is similar to that in the general population [26]. However, in

Table 1
First treatment contact and onset of prodromal symptoms and psychosis

	Total cohort	Schizophrenia	Affective psychosis
<i>Mean age (y) and SD (mo)</i>			
First treatment contact	14.3 (45)	13.8 (42)	15.1 (37)
Onset prodromal symptoms	14.8 (30)	14.5 (27)	14.7 (32)
Onset psychosis	16.2 (22)	16.3 (19)	16.0 (26)
<i>Mean interval (mo) and SD (mo)</i>			
First treatment contact-onset prodromal symptoms*	-4 (44)	-2 (38)	6 (38)
First treatment contact-onset psychosis*	-25 (47)	-31 (46)	-10 (31)
Onset prodromal symptoms-onset psychosis*	16 (17)	21 (17)	12 (13)

* $P < .05$, schizophrenia vs affective psychosis.

Table 2
Distribution of prodromal symptoms

	Total cohort (N = 129)		Schizophrenia (n = 36)		Affective psychosis (n = 39)	
	n	%	n	%	n	%
	Adaptive problems at school*	73	57	28	78	20
Suspicion	65	50	22	61	23	59
Introversion	58	45	22	61	18	46
Sleep problems	58	45	16	44	20	51
Aggression	53	41	15	42	18	46
Anxiety	48	37	14	39	15	39
Preoccupation with religious, philosophical, or paranormal themes	21	16	4	11	7	18
Diminished self care	19	15	8	22	4	10

* $P < .05$, schizophrenia vs affective psychosis.

39% of patients, the developmental history reports problems in cognitive development, mostly defined as learning problems. Problems in motor development, particularly coordination problems, occur in 34% of the cases. Developmental problems in the social area are reported in 67%. This usually involves social isolation and withdrawal. Subgroups A and S showed no differences with regard to premorbid functioning.

3.4. Prodromal symptoms

Prodromal symptoms were reported in 94%, on average 7 prodromal symptoms per patient (SD, 3.7). Adjustment problems at school were more frequent in the schizophrenic group than in the affective group; furthermore, there were no differences between the 2 groups with regard to the prevalence of prodromal symptoms (Table 2). Introversion was more common among boys than girls in the schizophrenia subgroup ($\chi^2_1 = 10.2, P < .05$).

As well as the items in Table 2, prodromal symptoms with a behavioral component were common (39%), followed by physical or motor (32%), cognitive (20%), and emotional symptoms (16%). There were no differences between subgroup A and S in this regard.

3.5. Symptoms

Positive symptoms were reported in 95% of cases, negative in 75%, depressive in 90%, and manic in 66%. Both positive and negative symptoms were seen more frequently in subgroup S than in subgroup A ($\chi^2 = 4.9, P < .05$ and $\chi^2 = 6.7, P < .05$). Manic symptoms occur more frequently in subgroup A ($\chi^2 = 7.3, P < .05$). The subgroups show no differences with regard to depressive symptoms. Many patients (47%) are suicidal. In 33% (n = 44), this involves suicidal thoughts, whereas in 14% (n = 18) there were suicidal actions or serious attempts at suicide.

3.6. Drug use

Drug use was reported in 62% of the adolescents (n = 79) who presented from 1995. Multidrug usage is seen in 30% and 38% of the subjects use drugs on a daily basis.

Table 3
Distribution of principal diagnoses at discharge

Diagnosis		Boys	Girls	Total
Schizophrenia	n	28	8	36
	% Within classification	77.8	22.2	100.0
	% Within sex	32.6	18.6	27.9
Affective psychosis	n	22	17	39
	% Within classification	56.4	43.6	100.0
	% Within sex	25.6	39.5	30.2
Psychosis NOS	n	22	10	32
	% Within classification	68.8	31.3	100.0
	% Within sex	25.6	23.3	24.8
Other psychosis	n	8	4	12
	% Within classification	66.7	33.3	100.0
	% Within sex	9.3	9.3	9.3
Other diagnoses ^a	n	6	4	10
	% Within classification	60.0	40.0	100.0
	% Within sex	4.7	3.1	7.8
Total	n	86	43	129
	% of Total	66.7	33.3	100.0

^a Principal diagnosis of no psychotic disorder, but during treatment period of brief psychotic disorder or psychosis NOS.

Onset of drug use was on average on the age of 15 years (SD, 16 months). Drug use is seen more frequently in the group with schizophrenia than in the group with affective psychoses ($\chi^2 = 6.9, P < .05$).

3.7. Distribution and stability of principal diagnoses

The adolescents were referred for diagnosis and treatment of psychotic disturbances, but the classifications at presentation diverged greatly. The most frequent classification at presentation is psychosis not otherwise specified (NOS). Three relatively large groups can be defined at discharge: a group with schizophrenia, a group with affective psychoses, and a group with other psychoses (Table 3). Boys more frequently have a classification in the schizophrenia spectrum at discharge, whereas girls more often show affective psychoses ($\chi^2 = 3.8, P < .05$). Of the schizophrenic patients, 78% are boys and 22% are girls. In the affective psychoses, 56% are boys and 44% are girls.

Although at least one third of the adolescents is reclassified in the course of time, schizophrenia is the most stable diagnosis. About one third of those presenting with an affective or other psychosis will be reclassified as schizophrenia. The classification psychosis NOS also proves to be

Table 4
Stability and change of principal diagnoses

Diagnosis at referral	Diagnosis at discharge			
	Schizophrenia (%)	Affective psychosis (%)	Psychosis NOS (%)	Other psychoses (%)
None	13	22	37	17
Schizophrenia	64	18	18	—
Affective psychosis	30	61	0	0
Psychosis NOS	32.5	32.5	30	5
Other psychoses	31	33	27	8

relatively stable, even after extensive assessment and treatment (Table 4). The prevalence of pervasive developmental disorders (at discharge) is only 5%.

4. Discussion

The results presented are derived from a retrospective study and must therefore be interpreted with some caution. It is not clear which data are missing. Furthermore, the data were collected over a long period, which means that time-related clinical trends with regard to which information is recorded and which is not can influence the data studied. There is also no comparison with a nonpsychotic group, making it impossible to draw conclusions on the specificity of, for example, prodromal symptoms.

In agreement with the findings of Gillberg and colleagues [17], boys more frequently have schizophrenia and girls more frequently exhibit affective psychoses. Although the age of onset of the psychosis is reported to be lower with boys than with girls [21,27,28], this was not the case in this study group. One possible explanation for this finding is the young age of the subjects, leading to less contrast between the differences within the group.

It is striking that 79% of the study group had treatment contacts before psychosis was detected. The question, however, is whether the duration of untreated psychosis [27] by definition therefore remained short. After all, it is not clear whether the psychotic symptoms were recognized and treatment was adequate. The fact that many adolescents reach care facilities at an early stage might be explained by the fact that adolescents are still under the supervision of caretakers, teachers, and others. Parents and teachers are able to notice problems and to stimulate help seeking at an early stage.

Also striking is that in both subgroups, there is a high percentage of adolescents showing developmental peculiarities, whereas McClellan et al [10] report that schizophrenic adolescents more frequently show premorbid social problems than adolescents with bipolar disturbances.

Frequently occurring prodromal symptoms are school problems, suspicion, introversion, sleep disturbances, and prodromal symptoms with a behavioral or physical component (see also Du Bois [29] and Parnas [23]). The prodromal phase is on average longer with adolescents who develop schizophrenia than with those with affective psychoses (21 vs 11 months). The prodromal phase is, however, short when compared with the 5 years described in adult schizophrenic patients [30]. There are no differences in the prodromal phase between the schizophrenia and the affective subgroups, except that adolescents with schizophrenia more frequently show adaptation problems at school. These problems could be related to cognitive disturbances. Furthermore, in boys with schizophrenia, prodromal introversion was found more often than in girls with schizophrenia. Olin and coworkers [12] report that girls in particular are

characterized by introversion, but this was based on the judgement of teachers.

Summarized, the prodromal phase in early-onset psychosis differs on a number of points from that in adult patients, probably due to developmental influences. Many adolescents proved to use drugs. The prevalence of drug use in adolescents with schizophrenia subgroup is higher than in adolescents with affective psychoses. The age of onset of drug use did not predict the age of onset of the psychosis. This finding is in contrast to the findings of Linszen et al [31] who propose that the use of cannabis can be described as a provoking stress factor or a premorbid sign. Linszen et al studied an older group showing only schizophrenic psychoses, which might explain the discrepancies.

Many of the adolescents with psychotic disorders not only have psychotic symptoms, but also have depressive symptoms. Depressive symptoms are reported to occur particularly in the first episode and are more severe [32,33]. However, it is questionable whether sleep disturbances, psychomotor retardation, and attention problems in psychoses relate to depressive symptoms or to negative symptoms. Half of the adolescents in both subgroups in this study population show suicidal thoughts and actions. Here too, the early-onset group differs from adult patients where suicidality is more frequently seen in affective than in schizophrenic psychoses [34].

Schizophrenia proves to be the most stable classification, although many shifts do take place. Diagnostic classifications at presentation are, however, determined by other professionals than the classifications at discharge. Changes in psychopathology might occur during the course of illness, but differential diagnostic methods probably also contribute to the instability of classifications. Regarding the heterogeneity of diagnoses in our study sample, the similarity of premorbid developmental problems is remarkable. Although treatment (in the Netherlands) takes place at an early stage, this is not specifically aimed at detection and treatment of psychoses. Therefore, it is of significance to focus on the early detection of schizophrenia as well other early-onset psychoses within treatment facilities. Careful assessment of the prodromal phase (duration, school problems, introversion in boys) and drug usage might be of help in diagnosing the nature of early-onset psychosis.

Acknowledgments

The authors thank JC Hop and I Pompen for their assistance in the data collection.

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