

EPIDEMIOLOGY OF CHILD AND ADOLESCENT  
PSYCHIATRIC DISORDERS IN ROMANIA  
NATIONWIDE SAMPLE AGE GROUP PREVALENCE

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The paper partly presents the results of an epidemiologic survey of child and adolescent psychiatric disorders conducted in Romania on a nationwide sample of 15,360 subjects aged 10 months to 16 years between 1981 and 1984. The subjects were aged 10-11 (1981), 12-13 (1982), 14-15 (1983) and 16-17 (1984). Some few categories of ICD-9 CM (1978) were also selected. After a description concerning and subjective, psychiatric and psychological investigation of the subjects, 100% diagnoses were assigned at least one psychiatric diagnosis. The prevalence percentages of the psychiatric disorders in children and adolescents was 11.67% with various age groups and 10.8% in the Romanian sample.

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Other participants: Dr. Stela Barbu, Roxa Bratu, Dan Ciubotaru, Nicolae Enache, Paul Ghibu, Sorin Iacobescu, Krasel Kirilov, Iuliana Kovacs, Dr. G. Elena Lupescu, Bogdan Marin, Sava Negreanu, Georgeta Nuta, Lucia Palade, R. Popovici, Florin Popovici, Tudor Stanculescu, Paulina Suta, Ionel Suta.



EDITURA ACADEMIEI ROMÂNE



# EPIDEMIOLOGY OF CHILD AND ADOLESCENT PSYCHIATRIC DISORDERS IN A ROMANIAN NATIONWIDE SAMPLE. I. AGE GROUP PREVALENCE

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The paper partly presents the results of an epidemiologic survey of child and adolescent psychiatric disorders conducted in Romania on a nationwide sample of 14,825 subjects aged 10 months to 16 years between 1981 and 1984. The diagnostic criteria were mostly based on DSM-III (1980). Some few categories of ICD-9 CM (1978) were also adopted. After a door to door screening and individual psychiatric and psychological investigation of the suspects, 1729 subjects were assigned at least one psychiatric diagnosis. The overall point prevalence of the psychiatric disorders in children and adolescents was 11.67% in the nationwide sample and 10.8% in the Bucharest sample. The paper shows the prevalence of 55 psychiatric diagnoses by age group in the general population of Romania. This study, known as the "Centaur project", is the only systematic epidemiologic survey conducted in Romania on the infantile population during the last 20 years.

*Key words:* epidemiology, child and adolescent psychiatric disorders.

## INTRODUCTION

The epidemiologic study reported in the present paper was conducted by the former Institute of Neurology and Psychiatry of Bucharest in collaboration with 18 teams\* of child psychiatrists and clinical psychologists throughout the country between 1981 and 1984. The project chief was dr. Dan Christodorescu, deceased in 1988.

*The aim of the study* was to determine the prevalence of psychiatric disorders and of some neurologic disorders in the general child adolescent population of Romania. The neurologic disorders will not be discussed here.

## METHOD

### SAMPLE

It was initially estimated that a nationwide sample of 15,360 subjects would be representative for the general child and adolescent population of Romania. The dimension of the sample was estimated so that a disorder can be detected at a .05 significance level.

\* **Other participants:** Drs. Stela Baltoiu, Ileana Benga, Dana Condrea, Nicolae Enache, Rudi Göllner, Stefan Kecskemety, Kristel Kirschner, Constantin Lupu, Elena Lupașcu, Ileana Moleavin, Barbu Negreanu, Georgeta Nuță, Lucia Palade, Romeo Pîrvulescu, Florica Popovici, Tache Scărlătescu, Rodica Șulea, Iudith Szabo.



Except Bucharest that contributed the largest sample (1894 subjects), in each county a subsample varying between 500 and 1000 subjects was selected to represent a big town, a small town and two villages. The selected counties represented all the provinces of Romania: Banat, Dobrogea, Moldova, Muntenia, and Transilvania.

The subjects were randomly ascertained from the registers of the pediatric outpatient services, where all children aged 0–16 were recorded, as well as from population registers in villages. The age of the children and adolescents entering the study ranged from 10 months to 15 years, 11 months, 30 days.

In each demographic area the subsample represented all the socio-cultural levels.

Only 14,825 of the 15,360 eligible families accepted the screening investigation. The breakdown of the sample by age group, by sex and age group and by socio-cultural level is presented in tables 1, 2 and 3, respectively.

Table 1

Total number of screened subjects by age group

Age	0–2	3–5	6–9	10–11	12–16
N	1958	2893	3955	1935	4084

Table 2

Total number of screened subjects by sex and age group

Age	0–2		3–5		6–9		10–11		12–16	
	M	F	M	F	M	F	M	F	M	F
N	974	984	1497	1396	1950	2005	973	962	1960	2124

M = male; F = female

Table 3

Breakdown of socio-cultural levels in the total sample

Level	1	2+3	4+5	6	Unknown
N	1017	8171	4047	1444	146
%	6.86%	55.11%	27.30%	9.74%	0.98%

The socio-cultural level of the families was defined according to the educational level of both parents; an average score rounded upwards was considered. The scoring of the socio-cultural levels was as follows: 1 = uncompleted elementary school (less than 8 grades); 2 = completed elementary school (8 grades); 3 = completed elementary school plus vocational school; 4 = completed high school; 5 = high school plus technical school; 6 = university studies. The distribution of the socio-cultural levels was normal ( $\chi^2 = 2.45$ ,  $df = 3$ , N.S.).

There were no significant differences among the provinces, among the 18 counties, and between counties and Bucharest as to the socio-cultural level of the subsamples.



## INVESTIGATION INSTRUMENTS

The screening record form was a checklist comprised of 68 items addressed to parents, 24 items addressed to kindergarten teachers (for children aged 3 to 6) and 37 items addressed to school teachers (for children aged 7 to 16). Each item was scored 0 (symptom absent), 0.5 (symptom present only sometimes or continuously present but with reduced intensity) and 1 (symptom definitely present and intense).

The screening form was administered by psychiatry nurses trained for the study, by residents in psychiatry and by psychologists.

A child scoring at least 6 at the items addressed to parents and at least 4 at the items addressed to teachers was considered suspect eligible for direct psychiatric and psychological examination. Among the screening items there were key items positive answer of which justified the suspect status even if the child had not a total score of 6+4.

Because the age range of the sample was large, the screening items were specially designed for different age groups (0-2; 3-9, over 9) and selectively addressed to parents and teachers. Only for children older than 9 all questions of the screening form (129 items) were addressed both to parents and teachers. In the screening stage the information was collected on domiciliary visits and school/kindergarten visits with the parents' agreement.

### **The clinical and psychological investigation of the suspects**

The suspects were directly investigated with the following tools:

a) The psychiatric investigation used a checklist based on DSM-III diagnostic categories and criteria (1). But some few disorders like neurasthenia, explosive and unstable personality disorder were diagnosed according to ICD-9CM (1978)(13). The checklist was accompanied by a glossary describing each disorder in terms of DMS-III criteria. The glossary was developed by the two principal investigators (D.C. and M.G.S.). The psychiatrists were trained for one week in using the checklist and the glossary. During the study the psychiatrists had to make a provisional diagnosis based on all available information sources (direct examination of the subject, direct interview of at least one parent about the subject, psychological investigation, teacher information, medical records if available).

The final diagnosis of each confirmed case was made blindly in Bucharest by the two principal investigators (D.C. and M.G.S.) adopting the best estimate procedure.

b) **The psychological investigation.** All suspect children aged 3 to 16 were psychologically examined with the purpose of making a precise diagnosis especially for Axis II disorders (intellectual subnormality, personality disorders),



but also for Axis I disorders. Children under the age of 3 were not investigated psychologically for financial reasons.

The following methods were used in the psychological investigation:

(i) Age 3–7: The intellectual development was measured with the Raven Coloured Progressive Matrices (7) and La Nouvelle Echelle Métrique de l'Intelligence (14). For the assessment of the emotional and behavioral development an inventory developed by one of the principal investigators (4). These methods had the advantage of being standardized for the Romanian population and at the same time easy to administer in an epidemiologic study.

(ii) Age 7.1–16 (15 years, 11 months, 30 days): The intellectual development was estimated with the Raven Progressive Matrices (PM38)(6) and the verbal tests of the W.I.S.C. The raw scores on PM38 were converted into standard scores with the mean equal to 100 and the standard deviation equal to 15 by means of the norms developed by Repan (8). The deviant personality traits were explored with the Junior Eysenck Personality Questionnaire (2,10). Simultaneously, children aged 8–11 and their parents were administered a personality inventory developed by M.G.S. intended to measure eight personality traits more closely related to the DSM-III personality diagnoses than the J.E.P.Q. This inventory was in a standardization process and it was published in 1987 (11).

The diagnosis of the developmental reading disorder (dyslexia) was made with a test battery developed for the Romanian language by Fradis and Sima (3).

The psychiatric and psychologic investigation records of all suspects throughout the country were checked at the Institute of Neurology and Psychiatry in Bucharest by the principal investigators.

**Investigators' training.** Twenty experienced child psychiatrists and clinical psychologists were trained at the Institute of Neurology and Psychiatry of Bucharest in using the investigation methods for one week. The trainers were the principal investigators (dr. Dan Christodorescu and dr. Maria Grigoroiu-Șerbănescu).

All investigators participated in a pilot study in which 500 subjects were screened. Each subject who positively scored at least one key item of the screening form was investigated by a psychiatrist and a psychologist with the methods described below.

## RESULTS

13 families (.08%) out of 14,825 refused the screening after an initial consent. 53 families (.36%) refused the psychiatric and psychologic investigation after having accepted the screening. 2503 (16.88%) subjects were declared suspects after the screening investigation. 1729 out of these subjects were assigned at least one psychiatric diagnosis at the clinical investigation. 674 (39%) subjects had two



diagnoses, 334 (19.32%) had three diagnoses and 119% (6.88%) received four diagnoses.

The overall point prevalence of the psychiatric disorders in children and adolescents was 11.67% (1729/14,812) in the nationwide sample and 10.8% in Bucharest. The point prevalence varied between 3.58% (Caras-Severin county) and 20.26% (Gorj county) in the counties.

The prevalence of certain diagnoses was computed only in certain age groups, where the computation made sense. Language development retardation was computed only in the age group 0-2 reaching a prevalence of .46% and it was two times more frequent in boys than in girls.

The psychological testing of the intelligence level allowed to preserve the borderline intelligence as a mental subnormality category in our research although it was dismissed from DSM-III. The DSM-III-R reintroduced this category later.

Table 4 presents the prevalence of each diagnosis in the total sample by age group irrespective of children's sex. (The breakdown of psychiatric disorders by sex in the total sample will be described in a next paper.) Abbreviated terms were used in this table for space reasons. Abbreviations are easy to understand by psychiatry specialists familiar with the DSM-III system.

Table 4  
Point prevalence of diagnoses by age group

	Diagnosis	Age				
		0-2	3-5	6-9	10-11	12-16
1.	Language develop. retard.	9 .46%	0 0%	0 0%	0 0%	0 0%
2.	Language devel.dis. -R	0 0%	0 0%	0 0%	0 0%	0 0%
3.	Language devel.dis. -E	2 .10%	1 .03%	0 0%	0 0%	0 0%
4.	Dislexia	0 0%	0 0%	9 .23%	2 .10%	8 .20%
5.	Devel.arithmetic disord.	0 0%	0 0%	4 .10%	8 .16%	4 .10%
6.	Borderline intelligence	2 .10%	36 1.24%	179 4.53%	90 4.65%	161 3.94%
7.	Mild mental retardation	2 .10%	25 .66%	65 1.64%	69 3.57%	111 2.72%
8.	Moderate ment.retard.	1 .05%	3 .10%	14 .35%	6 .81%	10 .24%
9.	Severe ment.retardation	3 .15%	4 .14%	6 .15%	3 .16%	3 .07%
10.	Profound ment.retard.	5 .26%	8 .28%	9 .23%	3 .16%	2 .05%
11.	Unspecified ment.retard.	9 .46%	9 .31%	9 .23%	6 .31%	2 .05%



Table 4 continued

	Diagnosis	Age				
		0-2	3-5	6-9	10-11	12-16
12.	Stuttering	2 .10%	19 .66%	34 .86%	12 .62%	19 .47%
13.	Elective mutism	0 0%	7 .24%	3 .08%	1 .05%	0 0%
14.	Chronic tics	1 .05%	12 .41%	37 .94%	15 .78%	22 .54%
15.	Tourette's disorder	0 0%	0 0%	0 0%	1 .05%	1 .02%
16.	Sleep terror disorder	1 .05%	20 .69%	33 .83%	19 .98%	14 .34%
17.	Sleepwalking disorder	0 0%	5 .17%	11 .28%	13 .67%	15 .37%
18.	Anorexia nervosa*	0 0%	0 0%	0 0%	1 .10%	1 .04%
19.	Bulimia nervosa	0 0%	0 0%	0 0%	0 0%	0 0%
20.	Primary enuresis	0 0%	26 .90%	164 4.15%	49 2.53%	39 .95%
21.	Secondary enuresis	0 0%	4 .14%	28 .71%	10 .52%	4 .10%
22.	Primary encopresis	0 0%	1 .03%	3 .08%	0 0%	1 .02%
23.	Secondary encopresis	0 0%	2 .07%	1 .03%	3 .16%	1 .02%
24.	ADHD	6 31%	107 3.70%	194 4.91%	76 3.93%	105 2.57%
25.	Conduct disorders	0 0%	1 .03%	14 .35%	30 1.55%	67 1.64%
26.	Oppositional disorder	0 .0%	29 1.0%	48 1.21%	19 .98%	41 1.0%
27.	Mixed dis. emotion & conduct	0 0%	9 .31%	39 .99%	14 .72%	18 .44%
28.	Adj. depressive mood	0 0%	0 0%	2 .05%	0 0%	5 .12%
29.	Adj. anxious mood	0 0%	1 .03%	6 .15%	2 .10%	3 .07%
30.	Adj. conduct disord.	0 0%	0 0%	0 0%	0 0%	0 0%
31.	Adj. affect. & conduct.	0 0%	1 .03%	5 .13%	2 .10%	6 .15%
32.	Adj. depres. & anxious	0 0%	1 .03%	1 .05%	4 .21%	8 .20%
33.	Adj. acad. inhibition	0 0%	0 0%	0 0%	0 0%	2 .05%

\* Only on female subjects.



Table 4 continued

	Diagnosis	Age				
		0-2	3-5	6-9	10-11	12-16
34.	Adj. withdrawal	0 0%	4 .14%	16 .48%	9 .47%	15 .37%
35.	Unspecified emotional dis.	10 .51%	55 1.90%	107 2.71%	27 1.40%	40 .98%
36.	Separation anxiety	1 .05%	7 .24%	7 .18%	3 .16%	7 .17%
37.	Overanxious disorder	0 0%	3 .10%	25 .63%	14 .72%	27 .66%
38.	Paranoid personality	0 0%	0 0%	0 0%	0 0%	1 .02%
39.	Schizoid personality	0 0%	0 0%	0 0%	1 .05%	3 .07%
40.	Schizotypal personality	0 0%	0 0%	0 0%	0 0%	1 .02%
41.	Compulsive personality	0 0%	0 0%	0 0%	6 .31%	3 .07%
42.	Histrionic personality	0 0%	0 0%	7 .18%	1 .05%	14 .34%
43.	Dependent personality	0 0%	0 0%	74 1.87%	36 1.86%	68 1.67%
44.	Unstable personality	0 0%	0 0%	2 .05%	2 .10%	7 .17%
45.	Explosive personality	0 0%	0 0%	4 .10%	1 .05%	4 .10%
46.	Hysteric. dis. conversion	0 0%	0 0%	1 .03%	0 0%	8 .20%
47.	Hysteric. dis. dissociative	0 0%	0 0%	1 .03%	0 0%	0 0%
48.	Phobic disorders	0 0%	3 .10%	26 .66%	15 .78%	26 .64%
49.	Obses-compulsive disorder	0 0%	0 0%	1 .03%	2 .10%	5 .12%
50.	Dysthymic disorder	0 0%	1 .03%	12 .30%	9 .47%	20 .49%
51.	Neurasthenia	0 0%	0 0%	1 .03%	0 0%	1 .02%
52.	Cyclotymic disorder	0 0%	0 0%	0 0%	0 0%	0 0%
53.	Hypomanic disorder	0 0%	0 0%	1 .03%	2 .10%	1 .02%
54.	Bipolar disorder	0 0%	0 0%	0 0%	0 0%	2 .05%
55.	Infantile autism	1 .05%	1 .03%	2 .05%	0 0%	0 0%
56.	Schizophrenia	0 0%	0 0%	0 0%	0 0%	0 0%



Some people could be surprised by the presence in table 4 of the personality disorders. According to DSM-III and next versions of DSM the diagnosis of personality disorder is made at age 18. But on the other hand the same system states that personality disorders are recognizable by adolescence or earlier and continue throughout most of adult life. Because we had the necessary information that met the DSM-III personality disorder criteria we made the diagnosis in those children and adolescents displaying for many years stable deviant personality traits.

We preserved the terms of unstable and explosive personality from ICD-9 CM because they described adequately the deviant behaviour of the subjects.

Table 5

Prevalence of diagnostic groups by age group

	Diagnosis	Age				
		0 - 2	3 - 5	6 - 9	10 - 11	12 - 16
1.	Mental retardation	22 1.12%	85 2.94%	272 6.88%	177 9.15%	288 7.05%
2.	ADHD	6 .31%	107 3.70%	194 4.91%	76 3.93%	105 2.57%
3.	Conduct disorders	0 0%	30 1.04%	62 1.57%	49 2.53%	108 2.64%
4.	Personality disorders	0 0%	0 0%	95 2.40%	48 2.48%	107 2.62%
5.	Mood disorders	10 .51%	57 1.97%	123 3.11%	42 2.17%	76 1.86%

Table 5 shows the prevalence of some large nosological groups of disorders by age of the subjects. These are:

I = mental retardation (borderline intelligence, mild, moderate, severe, profound mental retardation and unspecified mental retardation)

II = attention deficit disorder with and without hyperactivity

III = conduct disorders (all conduct disorders, oppositional disorder)

IV = personality disorders (paranoid, schizoid, schizotypal, dependent, compulsive, histrionic, unstable, explosive)

V = affective disorders (adjustment disorder with depressed mood, adjustment disorder with mixed emotional features (depression and anxiety), dysthymia, cyclothymia, hypomania, bipolar disorder, unspecified emotional disorders).

## DISCUSSION

The prevalence of many disorders diagnosed in this study is similar to the figures reported by other authors by 1985. This is valid for severe mental retardation, borderline intelligence, dislexia, ADHD, stuttering, enuresis, obsessive-



compulsive disorder (9). On the other hand, all kinds of tic disorders, sleepwalking, sleep terror disorder were less frequently diagnosed than in other studies.

The rate of mild mental retardation was high if compared to the expectation according to the Gaussian distribution of intelligence (2.23%) but comparable with the rate found by Stein et al. (12) in the Netherlands; they also used the Raven Progressive Matrices for measuring the intelligence level. This culture-free test has the advantage of measuring the general intelligence factor better than the verbal tests. The performance on verbal tests is more likely to be affected by learning and socio-cultural level of the family.

Though no case of unipolar major depression was diagnosed in our sample, the depressive disorder rate (including bipolar depression, dysthymia and adjustment disorders with depressed mood) was higher than in the epidemiologic study conducted by Rutter et al. (9) in the island of Wight (.14% in children aged 10). But the age range of the children in the study by Rutter et al. was narrower than in our study. The rates of depression reported by contemporary American studies in children were considerably higher both than our figures and Rutter's et al. figures. Kashani et al. (5) found 1.9% depressive disorders in children aged 10.

The present study has several limitations caused especially by the reduced compliance of the Romanian population to psychiatric investigation when the initiative comes from the researchers' part and not from the subjects. Nevertheless, all cautions possible at that time for maintaining the confidentiality of the investigation were taken.

Other shortcomings were generated by the involvement of a great number of collaborators with different attitudes toward the accuracy of the investigation. But as a whole the study remains valuable for the reason that it is the only systematic epidemiologic study of child and adolescent psychiatric disorders in Romania.

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