

## **Analysis of psychiatric services provided to children and youth in 2010–2016 based on the National Health Fund data**

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### **Summary**

**Aim.** In Poland, there is no systematic epidemiological research on mental disorders of children and adolescents in the general population, as well as a register dedicated to mental disorders. The aim of the presented study is to analyze psychiatric services reported to the National Health Fund that were provided to children and adolescents in the years 2010–2016.

**Method.** The starting point of this study was report entitled *Maps of health needs in mental disorders* published by the Ministry of Health. The analysis concerns all mental health services provided to children and adolescents in the years 2010–2016. The analysis covers seven largest, in terms of the number of patients, groups of mental disorders according to ICD-10 in children and adolescents.

**Results.** In the years 2010–2016, both the number of psychiatric service users under the age of 18 years and the total number of healthcare services have increased in almost all of analyzed areas. Unusually high increase in the number of services provided in the ad hoc mode in A&E department was registered, with a very small share of services provided in home environment. In almost all analyzed groups of mental disorders, there was a greater number of boys, as well as residents of a town/city. Only in the group of neurotic disorders associated with stress and in the somatic form a slightly higher number of girls was noticed.

**Conclusions.** In the years 2010–2016, an increase in the number of registered cases in the population of children and adolescents and the number of services in almost all of the analyzed areas was observed. High increase in services provided in the ad hoc mode in A&E department and a small share of services provided in the home environment indicates significant discrepancy between the needs and the availability of resources.

**Key words:** psychiatric services, children, adolescents

## Introduction

Mental disorders are the main cause of disability in children and adolescents, while knowledge about the overall prevalence of these disorders is limited [1]. Conducted analyses [2] show that about 20% of the developmental population suffers from a broadly understood mental disorder. Considering the fact that more than 50% of adult mental disorders begin before the age of 16 [3], epidemiological studies of mental disorders in childhood have prognostic meaning for mental disorders in adulthood as well as for assessing the risk of psychosis onset (especially schizophrenia) and assessing long-term effects of early intervention [4]. In Poland, there are no comprehensive epidemiological studies assessing the prevalence of mental disorders among children and adolescents [5], and there is no register for psychiatric disorders. Until now, an available source of information on the prevalence of mental disorders in the developmental population is the *Statistical Yearbook – Mental Healthcare Facilities*, published by the Institute of Psychiatry and Neurology.

In Poland, mental disorders requiring treatment affect about 9% of the population of children and teenagers, which means that about 630 thousand children and youth under 18 require help [6]. Literature on the subject [7, 5, 8], indicated that the incidence rates are higher in the group of people living in cities. Hyperkinetic disorders, overall developmental disorders, behavioral disorders, tics, and OCD are more often diagnosed in boys; while in girls emotional disorders (including depression) and eating disorders. Emotional disorders are the most widespread disorders in the developmental population, but it is worth to mention that there is an upward trend in their occurrence. When discussing epidemiological data, difficulties associated with coding ‘depressiveness/youth depression’ should be mentioned – it is often placed in the group of ‘mixed disorders of conduct and emotions’ and coded as F92.0 – depressive conduct disorder (which may result from the specificity of the clinical picture, severity of predominant symptoms or coding error).

The authors warn that 75% of children and adolescents suffering from mental disorders do not receive the help they need [9]. Despite the widespread recognition of the importance of broadly understood prevention and available psychiatric care in childhood and adolescence, there is a huge discrepancy between the needs and the availability of resources [10–12]. In most countries in Africa and Asia, there is no psychiatric healthcare system for the developmental population, and in developing countries, no matter how few services are available, they are based mainly on hospitals or other care facilities [12]. Still, less developed countries and those with lower income

are struggling with a shortage of specialists in child and adolescent psychiatry and low availability of this psychiatric care [13]. Comprehensive information on psychiatric healthcare for children and adolescents is provided by a study recently conducted in 28 European countries [14]. The publication shows that errors in the provision of services occur throughout Europe, mainly due to the lack of care paths tailored to the needs of children and adolescents. In addition, the organization and operation of the analyzed systems vary greatly from country to country. For example, there were two public service providers in Malta and Luxembourg, 939 in Great Britain; the number of service providers in relation to the target population ranged from 12.9/100 thousand young people in Finland up to 0.5 in Bulgaria. The availability of outpatient care facilities for children and young people in almost 60% of the surveyed countries was assessed as insufficient – for example, the opening hours of facilities in Estonia are two hours a day, in Romania 12 hours respectively. In Poland, the system of care for children and adolescents with mental disorders is characterized by an uneven distribution of institutions, moreover it is based mainly on hospital care, with relatively poor development of community-based care [5]. In recent years, the availability of outpatient care has improved slightly (only in some large cities), only single community-based treatment teams operate – around 1,000 places in day wards for children and adolescents were registered [6].

In this context, it may be useful for the purposes of health policy to analyze the registered prevalence and dynamics of changes within services provision on the basis of health services provided to children and adolescents in psychiatric healthcare facilities.

### **Aim of the study**

The aim of the presented study is an analysis of all psychiatric services reported to the National Health Fund that were provided to children and youth in the years 2010–2016.

### **Materials and methods**

The starting point of the study is report of the Ministry of Health entitled *Maps of Health Needs* published in 2016 and 2018 [15]. Pursuant to the regulation (Dz. U. (Journal of Laws) of 2015, item 458 [16]), MHN have been developed individually for voivodships and contain information on demography and epidemiology of the voivodship, the state and utilization of the resources, as well as the forecast of registered incidence. It includes information about inpatient care (e.g., in the part devoted to hospital treatment), as well as services provided in outpatient forms of care (outpatient psychiatric care, day care).

In the presented study, the information presented in two editions of the MHN was expanded by additional years – data for the years 2010–2016 were analyzed (MHN published in December 2016 presents data for 2014, next edition, published in De-

ember 2018 presents data for 2016). Due to differences in diagnostic and therapeutic procedures, as well as differences regarding social conditions, the presented analysis concerns services provided to children and adolescents defined as people who, at the time of service completion, were no more than 17 years old, according to the year of birth.

In the study, as well as in the MHN, a database of the National Health Fund was used, which contains the patient's ID (PESEL code) and information about all services provided to the patient throughout Poland. We selected services where the main reason of their provision was diagnoses from the group 'Mental and behavioral disorders' (the diagnostic codes beginning with the letter F according to the International Statistical Classification of Diseases and Related Health Problems (ICD-10). All services reported under the agreement between healthcare providers and the public payer for psychiatric care and treatment of addictions were included, regardless of whether they were paid. The study does not include services provided in primary care facilities due to the low quality of the reported data.

Mental disorders among children and youth have been grouped according to ICD-10. In order to analyze the reported benefits, the seven largest groups of mental disorders in children and adolescents were selected (their total share is over 80% of all patients). The groups in question together with corresponding ICD-10 codes are presented in Table 1.

In the study, we distinguished forms of care based on ministerial codes characterizing the specialty of organizational unit of health care facility – the codes were specified in the study concerning services provided to adults [17]:

- 24-hour psychiatric ward, forensic psychiatry, psychiatric rehabilitation, psychiatric emergency room/A&E department;
- psychiatric daycare, psychiatric hostel, community mental health team (CMHT);
- outpatient psychiatric care;
- treatment and care facility (TCF)/care and nursing facility (CNF);
- other facilities admitting patients with a diagnosis of a psychiatric disorder in 2010–2016.

Due the fact that psychiatric services are billed according to the number of patient-days or according to the number of services, separate analysis is provided for services billed according to patient-days and those billed according to the number of services. The paper presents information on the place of residence of the patient divided into urban and rural areas based on the territorial code of the municipality of residence of the patient [18].

Table 1. Groups of diagnoses with corresponding codes according to ICD-10

Name of subgroup	ICD-10 code	Full ICD-10 name
Neurotic, stress-related and somatoform disorders	F40	Phobic anxiety disorders
	F41	Other anxiety disorders
	F42	Obsessive-compulsive disorder
	F43	Reaction to severe stress, and adjustment disorders
	F44	Dissociative (conversion) disorders
	F45	Somatoform disorders
	F48	Other neurotic disorders
Mental retardation	F70	Mild mental retardation
	F71	Moderate mental retardation
	F72	Severe mental retardation
	F73	Profound mental retardation
	F78	Other mental retardation
	F79	Unspecified mental retardation
Disorders of psychological development	F80	Specific developmental disorders of speech and language
	F81	Specific developmental disorders of scholastic skills
	F82	Specific developmental disorder of motor function
	F83	Mixed specific developmental disorders
	F84	Pervasive specific developmental disorders
	F88	Other disorders of psychological development
	F89	Unspecified disorder of psychological development
Hyperkinetic and conduct disorders	F90	Hyperkinetic disorders
	F91	Conduct disorders
Mixed disorders of conduct and emotions	F92	Mixed disorders of conduct and emotions
Emotional disorders	F93	Emotional disorders with onset specific to childhood
Other disorders of conduct and emotions usually occurring in childhood and adolescence	F94	Disorders of social functioning with onset specific to childhood and adolescence
	F95	Tic disorders
	F98	Other behavioral and emotional disorders with onset usually occurring in childhood and adolescence

*table continued on the next page*

Other mental disorders in children and adolescents	F00–F39	Organic, including symptomatic, mental disorders Mental and behavioral disorders due to psychoactive substance use Schizophrenia, schizotypal and delusional disorders Mood (affective) disorders
	F50–F69	Behavioral syndromes associated with physiological disturbances and physical factors Disorders of adult personality and behavior
	F99	Unspecified mental disorders

## Results

### Patients – selected indicators

Figure 1 provides the number of patients who were aged below 18 years and for whom psychiatric services were reported in 2010–2016.

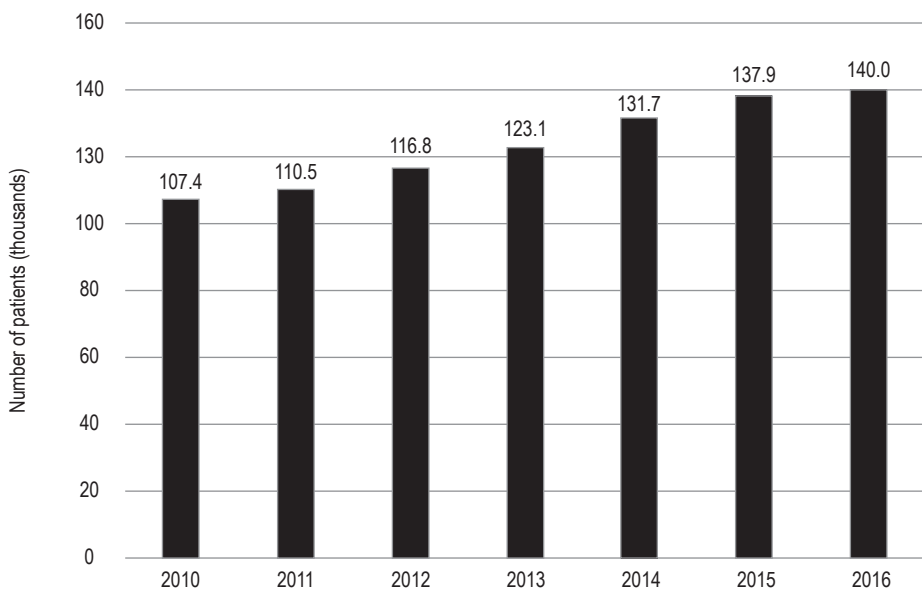


Figure 1. Number patients below 18 years of age (thousands) for whom psychiatric services were reported within the public payer system in 2010–2016

In 2010–2016, the number of patients below 18 years of age for whom psychiatric services were reported increased systematically – from 107.4 thousand in 2010 to 140.0 thousand in 2016 (an increase of nearly 30% over 6 years).

The demographic structure of patients, according to sex and place of residence, is provided in Table 2.

**Table 2. Sex and place of registered residence of patients who were provided with all analyzed forms of psychiatric care in 2010–2016**

Year	Number of patients (thousands)	Sex		Place of registered residence	
		Girls (%)	Boys (%)	City (%)	Country (%)
2010	107.4	34.6%	65.4%	69.7%	30.3%
2011	110.5	34.9%	65.1%	69.1%	30.9%
2012	116.8	35.2%	64.8%	69.1%	30.9%
2013	123.1	35.4%	64.6%	68.6%	31.4%
2014	131.7	35.8%	64.2%	67.9%	32.1%
2015	137.9	35.9%	64.1%	67.2%	32.8%
2016	140.0	35.8%	64.2%	66.6%	33.4%

In 2010–2016, boys were far more numerous group among the patients (around 65%), which significantly exceeded the natural distribution of the sexes in this age group – in 2010–2016 in the population aged below 18 years, males accounted for about 51% of population of children and youth aged below 18 years of age [19].

Almost 70% of the pediatric patients were patients with a place of registered residence in a city. It should be noted that this distribution does not stem from the demographic structure – according to the Central Statistical Office of Poland (GUS) data, in 2010–2016, around 55–56% of individuals below 18 years of age had a place of registered residence in a city.

In the next step, the number of patients who were provided with psychiatric services in 2010–2016 was analyzed according to the diagnosis group described in the section dedicated to materials and methods. Percentage results are presented in Table 3, and absolute numbers in Table 4.

**Table 3. Number of patients (%\*) in 2010–2016 according to the diagnostic group**

Diagnostic group	Year						
	2010	2011	2012	2013	2014	2015	2016
Hyperkinetic and conduct disorders	29.3%	30.0%	30.4%	29.8%	28.8%	29.2%	29.0%
Disorders of psychological development	22.4%	21.0%	20.7%	20.5%	20.2%	29.6%	30.6%
Neurotic, stress-related and somatoform disorders	20.7%	22.5%	24.3%	26.8%	28.2%	20.2%	20.4%
Emotional disorders	14.5%	15.4%	16.5%	16.2%	16.2%	16.0%	15.1%
Mixed disorders of conduct and emotion	14.3%	15.1%	14.9%	15.0%	14.8%	13.9%	12.9%
Mental retardation	11.1%	10.8%	10.4%	9.9%	9.3%	9.2%	8.8%

*table continued on the next page*

Other disorders of conduct and emotions usually occurring in childhood and adolescence	8.2%	8.5%	8.5%	8.3%	8.1%	8.1%	7.6%
Other mental disorders in children and adolescents	19.2%	19.9%	18.6%	18.6%	19.2%	18.6%	17.7%

\* The diagnosis refers to the main reason for providing the service (one patient could have more than one service), therefore the total number of diagnoses in a given year exceeds 100%.

According to the data in Table 3, the largest group of patients in 2010–2016 was the group with psychiatric services provided due to hyperkinetic and conduct disorders as well as with disorders of psychological development (almost 30%). Attention is drawn to the fact that the share of patients in the group of disorders of psychological development is increasing (from over 22% in 2010 to nearly 31% in 2016), with services provided by different providers: psychiatrists, psychologists and speech therapists. Patients diagnosed with neurotic, stress-related and somatoform disorders were the third largest group (20%), with a significant increase in the share of this group in 2011–2014 (23–28% respectively), after which in 2015 and 2016 it dropped to 20%.

Table 4. Number of patients (thousands) in 2010–2016 according to the diagnostic group

Diagnostic group	Year						
	2010	2011	2012	2013	2014	2015	2016
Hyperkinetic and conduct disorders	27.4	28.0	29.4	30.3	31.7	33.2	34.1
Disorders of psychological development	18.5	20.3	22.8	26.0	29.3	32.5	35.1
Neurotic, stress-related and somatoform disorders	21.2	20.2	20.8	21.7	23.0	24.1	24.8
Emotional disorders	15.0	16.0	18.0	18.7	20.2	20.8	19.9
Mixed disorders of conduct and emotion	14.3	15.1	15.8	16.7	17.7	17.3	16.4
Mental retardation	10.5	10.4	10.5	10.3	10.4	10.7	10.4
Other disorders of conduct and emotions usually occurring in childhood and adolescence	8.1	8.6	9.0	9.4	9.7	10.2	9.9
Other mental disorders in children and adolescents	5.6	5.9	5.5	5.5	7.2	20.9	20.4
Total	107.4	110.5	116.8	123.1	131.7	137.9	140.0

In 2016, in the presented groups of diagnoses there is an increase in the number of patients compared to their number in 2010. The largest absolute increase occurred in the group of diagnoses: disorders of psychological development (increase of 16.6 thousand patients). A significant increase was also noted in the number of children and adolescents who were provided with psychiatric services due to emotional disorders (in



2010–2015 increase of 5.8 thousand patients), although in 2016 there was a decrease in the number of patients by almost 1 thousand in comparison to 2015.

The number of patients according to the group of psychiatric disorders and sex is provided in Table 5.

Table 5. Number of patients (thousands) in 2010–2016 according to group of psychiatric disorders and sex

Year	2010		2011		2012		2013		2014		2015		2016	
Diagnostic group	Sex													
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Hyperkinetic and conduct disorders	5.2	22.2	5.4	22.6	5.9	23.5	6.1	24.2	6.4	25.3	6.8	26.4	6.9	27.2
Disorders of psychological development	4.4	14.1	4.7	15.6	5.1	17.7	5.7	20.3	6.3	23.0	6.9	25.6	7.5	27.6
Neurotic, stress-related and somatoform disorders	10.6	10.6	10.3	9.9	10.8	10.0	11.5	10.2	12.5	10.5	13.2	10.9	13.7	11.1
Emotional disorders	6.6	8.4	7.1	8.9	8.1	9.9	8.6	10.1	9.4	10.8	9.8	11.0	9.3	10.6
Mixed disorders of conduct and emotions	4.7	9.6	5.2	9.9	5.8	10.0	6.3	10.4	7.1	10.6	7.0	10.3	6.9	9.5
Mental retardation	3.5	7.0	3.5	6.9	3.5	7.0	3.4	6.9	3.4	7.0	3.6	7.1	3.5	6.9
Other disorders of conduct and emotions usually occurring in childhood and adolescence	2.8	5.3	3.1	5.5	3.3	5.7	3.5	5.9	3.7	6.0	4.1	6.1	4.0	5.9
Other mental disorders in children and adolescents	2.1	3.5	2.3	3.6	2.1	3.4	2.1	3.4	2.8	4.4	10.1	10.8	10.1	10.3
Total	37.2	70.2	38.6	71.9	41.1	75.7	43.6	79.5	47.1	84.6	49.5	88.4	50.1	89.9

In the reported services, in almost all analyzed groups of mental disorders of children and adolescents, a larger number of boys was observed. Only in the group of neurotic, stress-related and somatoform disorders a slightly higher number of girls can be observed.

Median age of the patients aged below 18 years in groups of psychiatric disorders is given in Table 6.

Table 6. Median age of patients according to group of psychiatric disorders in 2010–2016

Diagnostic group	2010	2011	2012	2013	2014	2015	2016
Hyperkinetic and conduct disorders	11	11	11	11	11	11	11
Disorders of psychological development	7	7	7	7	7	8	8
Neurotic, stress-related and somatoform disorders	14	14	14	14	14	14	14
Emotional disorders	10	10	10	10	11	11	11
Mixed disorders of conduct and emotions	13	14	14	14	14	14	14
Mental retardation	14	13	13	13	13	13	13
Other disorders of conduct and emotions usually occurring in childhood and adolescence	10	10	10	10	10	10	10
Other mental disorders in children and adolescents	11	11	11	11	11	16	16

In 2016, the lowest median age (7/8 years) was observed for disorders of psychological development and the highest (16 years) for other mental disorders in children and adolescents. Median age of 14 years was observed for two groups: neurotic, stress-related and somatoform disorders, and mixed disorders of conduct and emotions. Median ages of patients are nearly the same for all the years of interest within the analyzed diagnostic groups.

#### Selected organizational indicators

Table 7 provides the absolute number of patient-days of psychiatric services reported for patients aged below 18 years (thousands) in 2010–2016 (including forms of care in which the services are billed according to the number of patient-days).

Table 7. Number of patient-days (thousands) according to the site of service provision in 2010–2016

Form of care	2010	2011	2012	2013	2014	2015	2016	Percent change 2010–2016
24-hour psychiatric ward	292.9	284.5	282.2	277.9	304.4	338.0	331.1	13%
Forensic psychiatry	98.7	57.0	39.8	47.1	54.8	52.1	49.8	–50%
Daycare ward	350.3	389.4	440.9	887.6	828.5	793.5	531.1	52%
Psychiatric rehabilitation	206.2	128.6	138.5	104.6	134.7	124.6	109.5	–47%
TCF/CNF	23.6	11.7	24.3	16.9	31.4	31.2	21.5	–9%

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Psychiatric hostel	16.7	11.3	5.6	4.2	2.5	2.8	2.8	– 83%
Total	988.4	882.5	931.3	1,338.2	1,356.4	1,342.2	1,045.8	6%

According to the data presented in Table 7, the largest number of patient-days in 2010–2016 was reported for daycare wards. It is worth mentioning that in 2016 about 52% more patient-days were reported than in 2010, while in 2013 this increase was particularly high – the number of patient-days was 2.5 times higher than in 2010. In the case of 24-hour care wards (hospitals) the increase was relatively small (13%). A decrease in the number of patient-days was, on the other hand, observed for psychiatric hostels (83%), forensic psychiatry wards (50%) and psychiatric rehabilitation (47%).

Table 8 illustrates the number of patient-days per patient within the forms of care billed according to patient-days.

Table 8. Number of patient-days per patient in 2010–2016

Form of care	2010	2011	2012	2013	2014	2015	2016	Percent change 2010–2016
24-hour psychiatric ward	45.3	42.7	42.2	39.3	39.2	42.9	41.7	– 8%
Forensic psychiatry	472.4	388.0	288.3	235.3	253.9	198.8	201.0	– 57%
Daycare ward	148.1	152.0	149.6	264.6	240.2	215.8	144.3	– 3%
Psychiatric rehabilitation	130.0	120.0	152.0	115.9	153.9	139.7	129.5	0%
TCF/CNF	319.5	243.1	142.1	112.6	156.3	155.2	102.7	– 68%
Psychiatric hostel	187.1	140.0	165.3	122.1	101.0	83.6	79.0	– 58%
Total	91.6	83.5	85.6	114.3	108.2	110.2	85.8	– 6%

The number of patient-days per patient indicates that in 2016, the largest number of patient-days per patient was reported for forensic psychiatry wards and for daycare wards. It is worth mentioning that the shortest psychiatric services were reported for the 24-hour psychiatric ward – over the years of interest this period has shortened by 4 days. In general, in 2010–2016, a decrease in the number of patients-days per patient was observed in inpatient forms of care: in TCF/CNF (68%), psychiatric hostels (58%), forensic psychiatry (57%), in a 24-hour psychiatric ward (8%).

Table 9 provides the number of consultations and Table 10 the number of consultations per patient at the emergency room/A&E department, in outpatient psychiatric care and in community mental health teams (CMHT).

**Table 9. Number of consultations (thousands) according to the site of service provision in 2010–2016**

Form of care	2010	2011	2012	2013	2014	2015	2016	Percent change 2010–2016
Emergency room / A&E department	0.8	1.6	1.4	2.2	3.1	3.3	3.8	375%
Outpatient psychiatric care	518.2	572.8	632.4	688.3	738.8	770.9	779.3	50%
CMHT	3.5	4.9	7.1	8.8	8.6	9.9	10.6	203%
Total	522.5	579.3	640.9	699.3	750.5	784.0	793.6	52%

It should be noted that the largest number of consultations for children and adolescents with mental disorders was given in outpatient psychiatric care. Over the years 2010–2016, the number of reported consultations increased significantly in the emergency room/A&E department (4.75 times), CMHT (more than 3 times) as well as in outpatient psychiatric care (increase of 50%). Despite the observed increase in the number of consultations in CMHT, their number in 2016 still constituted only 1.3% of outpatient services.

**Table 10. Number of consultations per patient according to the form of care**

Form of care	2010	2011	2012	2013	2014	2015	2016	Percent change 2010–2016
Emergency room / A&E department	1.09	1.36	1.13	1.13	1.16	1.18	1.18	9%
Outpatient psychiatric care	5.02	5.39	5.63	5.83	5.85	5.83	5.81	16%
CMHT	6.50	8.63	7.46	7.87	7.96	8.76	8.16	25%
Total	5.03	5.41	5.66	5.86	5.87	5.85	5.84	16%

In 2010–2016, there was an increase in the number of psychiatric services per patient in outpatient forms of care: in CMHT (25%), and in outpatient psychiatric care (16%).

The next step involved an analysis of types of consultations in outpatient psychiatric care dedicated to children and adolescents – absolute numbers in the analyzed years are presented in Table 11, percentage distribution in Table 12.

**Table 11. Number of consultations (thousands) provided in outpatient psychiatric care dedicated to children and adolescents, according to type of consultation, in 2010–2016**

Year	Medical consultations	Psychologist consultations	Psycho-therapy sessions	Addiction treatment consultations*	Community consultations/ visits	Comprehensive therapeutic consultations	Total
2010	187.1	155.6	59	-	0.6	111.0	515.6
2011	191.8	169	68.7	-	0.6	138.3	570.1
2012	204.5	181.2	76.9	5.8	0.8	163.1	634.1

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2013	214.1	192.3	90.4	7	1.4	183.0	689.8
2014	230.2	198.3	108.7	7.6	0.9	193.8	740.5
2015	235.9	201.4	116.8	7.1	0.7	209.2	771.2
2016	237.2	198.2	125.7	6.3	0.8	212.2	780.3
Change (%) 2010–2016	27%	27%	113%	9%	33%	91%	51%

\* Percentage change in the number of addiction treatment consultations concerns changes since 2012 – this type of consultations for children and adolescents was not reported before this year.

**Table 12. Percentage distribution of consultations provided to children and adolescents within outpatient psychiatric care, according to type of consultation, in 2010–2016**

Year	Number of consultations (thousands)	%					
		Medical consultations	Psychologist consultations	Psycho-therapy sessions	Addiction treatment consultations	Community consultations/visits	Comprehensive therapeutic consultations
2010	515.6	36.3%	30.2%	11.4%	0.0%	0.1%	21.5%
2011	570.1	33.6%	29.6%	12.1%	0.0%	0.1%	24.3%
2012	634.1	32.2%	28.6%	12.1%	0.9%	0.1%	25.7%
2013	689.8	31.0%	27.9%	13.1%	1.0%	0.2%	26.5%
2014	740.5	31.1%	26.8%	14.7%	1.0%	0.1%	26.2%
2015	771.2	30.6%	26.1%	15.2%	0.9%	0.1%	27.1%
2016	780.3	30.4%	25.4%	16.1%	0.8%	0.1%	27.2%
Change (percentage points(pp)) 2010–2016		-6pp	-5pp	5pp	1pp	0pp	6pp

\* Percentage change in the number of addiction treatment consultations concerns changes since 2012 – this type of consultations for children and adolescents was not reported before this year.

In 2010–2016, the largest percentage of services provided in outpatient psychiatric care were medical consultations. In 2010, there were about 187.1 thousand of such consultations and about 237.2 thousand in 2016 (increase of 27%), while their share in relation to other types of consultations has been systematically decreasing and in 2016, compared to 2010, it was lower by over 6 percentage points. The following places in terms of the increase in the absolute number of consultations are occupied by: comprehensive therapeutic consultations, psychologist consultations, psychotherapy sessions, addiction treatment consultations, and community visits. For each type of consultations an increase in the number of services was observed; the largest increase was observed in the case of psychotherapeutic consultations: from 59 thousand in 2010 up to nearly 125.7 thousand in 2016 (almost twice as much). Similar trend was noticed in the case of comprehensive therapeutic consultations,

the number of which increased by 91%. Their percentage share in relation to other types of consultations increased from 21.5% in 2010 up to 27.2% in 2016 (increase of 6 percentage points).

Consultations provided at outpatient mental health clinics for children and adolescents (ministerial code: 1701) were subject to a detailed analysis due to its leading role in the system of outpatient psychiatric care for the pediatric population. Table 13 provides the structure of consultations for this clinic type in each of the years of interest.

Table 13. **Number of consultations (thousands) provided at outpatient mental health clinics for children and adolescents in 2010–2016, by consultation type**

Year/ Consultation type	Medical consultations	Psychologist consultations	Psychotherapy sessions	Community consultations/ visits	Comprehensive therapeutic consultations	Total
2010	163.9	103.2	30.6	0.3	6.9	306.0
2011	169.4	119.3	39.8	0.5	5.7	335.7
2012	186.4	131.1	48.7	0.7	7.9	375.5
2013	195.5	141.7	58.1	1.3	8.9	405.8
2014	210.0	149.1	73.0	0.8	10.9	444.1
2015	215.3	151.5	81.6	0.6	13.9	462.9
2016	217.7	152.7	89.7	0.7	16.4	477.2
Change (%) 2010–2016	33%	48%	193%	133%	138%	56%

As in the case of the total number of consultations within outpatient psychiatric care, the number of all types of services at outpatient mental health clinics for children increased in 2010–2016 (an increase of 56%). The largest increase was observed for psychotherapy sessions (nearly three times increase), comprehensive therapeutic consultations (2.4 times increase) and community consultations/visits (2.3 times increase). The smallest increase was observed for medical consultations (increase of 33%).

Table 14 provides the percentage distribution of each type of consultations in 2010–2016, provided in mental health clinics for children and adolescents.

Table 14. **Percentage distribution of consultations provided in mental health clinics for children and adolescents in 2010–2016**

Year number of consultations (thousands)		%				
		Medical consultations	Psychologist consultations	Psychotherapy sessions	Comprehensive therapeutic consultations	Community consultations/ visits
2010	306	53.6%	33.7%	10.0%	0.1%	2.3%
2011	335.7	50.5%	35.5%	11.9%	0.2%	1.7%

*table continued on the next page*

2012	375.5	49.7%	34.9%	13.0%	0.2%	2.1%
2013	405.8	48.2%	34.9%	14.3%	0.3%	2.2%
2014	444.1	47.3%	33.6%	16.4%	0.2%	2.5%
2015	462.9	46.5%	32.7%	17.6%	3.0%	0.1%
2016	477.2	45.6%	32.0%	18.8%	3.4%	0.2%
Change (pp) 2010–2016		-7.9pp	-1.7pp	8.8pp	3.3pp	-2.1pp

Analysis of the consultations showed an increase in the percentage of consultations provided by psychotherapists in 2010–2016 (increase of almost 9 percentage points). Of note is small share of services provided as community consultations/visits, however, slight increase is observed – from 0.1% in 2010 to 3.4% in 2016.

### Discussion

In Poland, so far there is no systematic epidemiological research on mental disorders of children and adolescents in the general population, as well as a register dedicated to mental disorders. In this context, to illustrate the registered prevalence and dynamics of changes in the scope of services, an analysis based on health services provided to children and adolescents in psychiatric healthcare units and reported to the National Health Fund may be useful. This is, in the authors' opinion, important because psychiatric disorders are the main cause of disability in children and adolescents [1] and more than 50% of adult mental disorders begin before the age of 16 [3].

According to the analysis of psychiatric services reported in 2010–2016 for the pediatric population and financed by the National Health Fund, there was a gradual increase in the number of children and adolescents receiving services in various forms of psychiatric care (in six years an increase of almost 30%). An increase in the total number of reported services is also observed. It can be assumed that obtained results, apart from biological factors, could have been influenced by intense changes in Polish families during the economic and socio-cultural transformation of recent years, such as: increasing divorce rates, more time spent at work – lack of emotional availability of parents, labor emigration of one and sometimes both parents, the role of the Internet as a means of communication in the family [5]. Patients diagnosed with neurotic, stress-related and somatoform disorders were the third largest group (21%). In this context, the observed increase in the number of psychologist consultations and psychotherapy sessions indicates the right direction of assistance. At the same time, the needs in the field of psychiatric care may be even greater, as children and adolescents receiving social care system services have a higher incidence of mental disorders compared to the general population [20]. There was also an increase in the number of patients broken down by groups of mental disorders [21]. At this point, it is worth paying attention to a certain paradox. Research from the United Kingdom [22]

and the United States [23] indicate that the use of psychiatric services is significantly reduced when adolescents with developmental, emotional/neurotic and personality disorders reach 16 years (by 24% and 45% respectively) and 18 years (by 60% in the United Kingdom). The reason is the difficult communication and cooperation in the transition from the healthcare system for children and adolescents to the one for adults [24, 25]. Legal, logistic and clinical differences, combined with time constraints and a shortage of resources, make it impossible for both systems to provide care in parallel [26]. In the performed analysis, positive observation, within the meaning of the place of services provision, is the increase in the number of reported services in outpatient forms of treatment, such as: daycare ward, CMHT, or outpatient psychiatric care. It can be assumed that this is a predictor of the expected reform – transferring the burden of care to the patient's environment, which was already postulated by professionals [5, 6].

On the basis of the available data, it is difficult to unambiguously interpret the fact that in the analyzed years the most numerous group of patients were people diagnosed with hyperkinetic and conduct disorders (nearly 30%). The next largest group were patients with disorders of psychological development (from over 22% to nearly 31%, respectively). Admittedly, a systematic review of the prevalence of ADHD/HD [27] shows that the observed high variability in the prevalence of these disorders is mainly due to the methodology used in the study. However, it is worth emphasizing that the above-mentioned data correspond with empirical knowledge – over the last decade, the profile of treated patients has changed. According to practitioners, more patients with externalizing disorders are now reported than patients with internalizing disorders, and this phenomenon applies to both boys and girls.

It is interesting that there are very few services with the diagnosis of the first psychotic episodes and affective disorders. This may be due to diagnostic difficulties or coding difficulties. The prodromal symptoms of psychosis in children/adolescents may be nonspecific – unusual cognitive and social development may prevail in the clinical picture [28]. In contrast, 'depressiveness/youth depression' is often placed in the group of 'mixed disorders of conduct and emotions' and coded as F92.0 – depressive conduct disorder.

In the reported services, in almost all analyzed groups of mental disorders of children and adolescents, a larger number of boys was recorded. Only in the group with neurotic, stress-related and somatoform disorders a slightly higher number of girls can be noticed. Also in studies conducted by other authors, boys were more often diagnosed with mental disorders of developmental age [29]. The authors are not surprised by the age of patients (median of 14 years) provided with services in the group of diagnoses: 'neurotic, stress-related and somatoform disorders' and 'mixed disorders of conduct and emotions'. The period of adolescence (early adolescence), as a time of intense physical changes, identity crisis and related emotions is a particularly difficult period in the teenager's life [30], with high risk of suicide [31].

Over the analyzed years, there was a remarkably high increase in services provided in the ad hoc mode at emergency room/A&E department (375%). This phenomenon



indicates a huge discrepancy between the needs and the availability of resources, for which authors from various facilities have been paying attention for many years [10–12].

The basic limitation of the presented analysis is that it only takes into account information included in the databases of the public payer of health services – the National Health Fund. Therefore, services provided in the non-public sector were not analyzed. The results obtained in the study could be enriched with the analysis of the reported services in the age groups of 16 and 18, due to the ‘critical point’ – the transition from one system of services (psychiatric care for children and adolescents) to another (psychiatric care for adults).

### Conclusions

1. In the years 2010–2016, an increase in the registered prevalence of disorders in the developmental population and an increase in the number of services in almost all of the analyzed ranges was observed.
2. An extremely high increase in the number of services provided on an ad hoc basis in the emergency room/A&E department and a small share of services provided in the home environment of the patient indicates a huge discrepancy between the needs and the availability of resources.
3. A comprehensive analysis of the services provided in child and adolescent mental healthcare requires access to information on services financed from non-public source and the extension of the reported information.
4. The results obtained in the study indicate the urgent need to adopt new legal and organizational regulations for the psychiatry of developmental age.

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