

The clinical picture of bipolar affective disorders in children and adolescents hospitalized at the psychiatric ward in Sosnowiec

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Summary

Aim. To determine the clinical picture of bipolar affective disorders (BD) in children and adolescents hospitalized at the Clinical Ward of Developmental Age Psychiatry and Psychotherapy (DAPP) in Sosnowiec, Poland.

Material and methods. Documentation analysis of 288 BD patients below 18 years of age. Detailed clinical and demographic data were collected and symptoms present during hospitalization were assessed.

Results. The mean age of illness onset was 13.6 ± 1.7 years. A total of 86.5% of the studied individuals received a first diagnosis different from BD/mania, and the average time until the proper diagnosis was 16.9 months. In 45.5% the first episode was depression with varied severity, in 29.2% a mixed episode and in 25.3% mania/hypomania. In 48.6% comorbid disorders were present. The most frequent reason for hospitalization was a mixed episode (47.6%). Among the symptoms, irritability was observed in over 80% of patients with mania or mixed episodes, but also in 60% of patients with depression. Suicidal thoughts were experienced by almost all the depression patients, 84.7% in the mixed episode and also 52.6% in mania/hypomania episode. Anxiety was mostly present in depression (40.7%) and mixed episode (22.6%), while mood-congruent delusions in depression and mania (around 20% of cases). Aggressive behaviours were manifested in around half of patients with mania and a mixed episode.

Conclusions. In the studied population of children and adolescents, BD usually started with a depression episode accompanied by a high rate of comorbid disorders and in most

cases there was an original misdiagnosis. Study results also point to a significant frequency of some pathological symptoms in this population.

Key words: bipolar affective disorder, mania, mixed episode

Introduction

Bipolar disorder (BD) is characterized by pathological changes of mood and activity in the course of which there are mania, hypomania and depression episodes as well as mixed episodes, usually separated by a remission or subclinical symptoms of the disorder [1-3]. Children and adolescents are diagnosed with BD based on the diagnostic criteria in force. The ICD-11 classification assumes the same criteria regardless of the patient's age [2], while in the DSM-5 classification it is noted for depression that in children and adolescents, irritable mood may replace decreased mood and instead of body mass reduction – a failure to achieve expected body mass [3].

Literature on BD in the pediatric population published so far suggests that the frequency of various symptoms is different in this group than in adults [4]. In young individuals, irritability is more common than decreased mood during depression [3, 5]. Similarly to adults, the disorder often starts with an episode of depression [6], and depression in the course of BD occurs earlier than in major depressive disorder (MDD), is more severe and there are more atypical symptoms [7]. After antidepressant therapy young patients manifest mania/hypomania or a mixed episode as well as auto-aggressive behaviors more frequently than adults. In children and adolescents during mania both elevated and irritable moods are possible [8]. Aggressive behaviors, conflicts and anger outbursts are common [9, 10]. A meta-analysis of 20 studies from 2016 shows that the most common mania symptom in childhood is increased energy, followed by irritability [11]. In the pediatric population more often than in adults there are also mixed episodes that are characterized by a higher rate of suicides, chronicity of the symptoms and higher comorbidity, as well as a younger age of onset [12, 13].

In the pediatric BD population there is a high rate of comorbidity of other mental disorders which may affect the clinical picture of the disorder and delay the proper diagnosis. It is estimated that 54% of young individuals with BD experience anxiety disorders, around 32% use psychoactive substances and 9.5% to 28% suffer from attention deficit hyperactivity disorder (ADHD), and up to 20% have borderline personality disorder (BP) [14-16].

Material and method

Data for the study were obtained based on a detailed review of medical documentation of 288 patients aged below 18 years who live in the Silesian Province and are diagnosed with BD (diagnosed on the basis of the ICD-10 and DSM-5), hospitalized at the Clinical Ward of Developmental Age Psychiatry and Psychotherapy (DAPP) of the Medical University of Silesia at the John Paul II Pediatric Center in Sosnowiec between 2016 and 2018. Before starting the study, the authors jointly prepared a database schema based on a standard interview and mental state examination practiced in

the DAPP. The prepared sheet was filled in manually by the authors on the basis of the analysis of information from the documentation held. The analysis included all patients hospitalized during this period who met the inclusion criteria, with a diagnosis of BD encoded in the hospital's computer system (with the help of which their medical histories were searched), and only excluded people with psychoactive substance-induced BD. At the time of data collection, none of the persons whose records were reviewed had the BD diagnosis changed to another one in the DAPP, while changes in the diagnosis in other institutions were not taken into account due to lack of knowledge in this area.

The diagnosis of BD was made by a team of doctors and psychologists on the basis of an interview, round-the-clock observation in hospital conditions, psychiatric and psychological examination and analysis of available medical documentation or opinions on functioning from educational institutions or other places (if the subject had any), which was aimed at facilitating differential diagnosis and minimizing the risk of misdiagnosis. In addition, the people whose documentation was analyzed had laboratory tests (i.a., thyroid hormones, tests for the presence of psychoactive substances in urine), imaging of the head and, depending on the clinical picture and problems, appropriate tests such as ADOS-2 and Stanford-Binet 5 Intelligence Scale.

Collected data included sex, age, history of diagnostics and treatments, school situation and experienced traumatic events (e.g., violence or sexual abuse). As a standard, information was also collected on comorbid disorders and the first diagnosis after the onset of symptoms from the BD spectrum (the occurrence of BD symptoms is understood as the moment when the first information about significant changes in functioning/behavior and related new symptoms that may indicate mood disorders appear in the obtained history/available documentation). In the analysis of the first diagnoses made in these patients after the onset of the first symptoms of mood disorders, the diagnoses of comorbidities whose symptoms occurred in the subjects earlier, i.e., before the symptoms of bipolar spectrum disorders, were not taken into account.

Moreover, the profile of manifested symptoms during hospitalization was analyzed, taking into account: mood, drive, affect modulation, concentration and memory changes, positive symptoms, disruption of structure, form or content of thoughts, loss of interests, auto-aggressive, aggressive and risky behaviors (including law conflict), circadian rhythm disruptions, appetite and weight changes, the level of hygiene, libido changes, somatic symptoms, and changes in establishing relations or self-esteem.

Statistical analysis

Results for quantitative variables were presented in the form of a mean $\pm$ standard deviation ($M \pm SD$). For qualitative variables, proportions were used. To establish the relationship between chosen qualitative variables contingency tables analysis was applied. For groups with a high numerical force the χ^2 test was carried out and with a low numerical force in sub-groups the χ^2 test with Yates's correction for continuity or Fisher's exact test. The critical value in statistical reasoning was assumed at the significance p level lower than 0.05. Calculations were made with Statistica 13 ver. PL.

Results

The mean age of BD patients whose documentation was analyzed during hospitalization at the Clinical Ward was 15 ± 1.5 years. Of the hospitalized individuals, 80.2% were females. The mean onset age was 13.6 ± 1.7 years. The time from the first BD symptoms until the proper diagnosis was 16.9 ± 14.7 months.

Table 1 presents precisely the type of the first BD episode in the studied patients. The most frequent first episode was depression (45.5%), where in 31.9% it was a moderate episode. The second most frequent episode was mixed (29.2%).

Table 1. The first BD episode in hospitalized individuals

Type of the first episode	Number of individuals	%
Hypomania episode	9	3.1
Mania episode with no psychotic symptoms	46	16
Mania episode with psychotic symptoms	18	6.2
Mild depression episode	11	3.8
Moderate depression episode	92	31.9
Severe depression episode with no psychotic symptoms	12	4.2
Severe depression episode with psychotic symptoms	16	5.6
Mixed episodes	84	29.2

A total of 13.5% of patients in the ward were diagnosed with: a mania episode or BD as the first diagnosis upon first symptoms. However, in the remaining 249 individuals (86.5%) different diagnoses were made. They are presented in Table 2 (the diagnoses of comorbid disorders whose symptoms occurred in the subjects earlier, i.e., before the symptoms of bipolar spectrum disorders, were not taken into account).

Table 2. The first diagnosis made for individuals upon first BD symptoms

Diagnosis	Number of individuals	%
Depression	94	32.6
Emotional and behavioral disorders	41	14.2
BD	37	12.8
Behavioral disorders	31	10.8
Hyperkinetic movement disorders	23	8
Eating disorders	11	3.8
Adjustment disorders	9	3.1
Schizophrenia	8	2.8
Emotional disorders	6	2.1
Brief psychotic disorders	4	1.4
Mixed depressive and anxiety disorders	4	1.4

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Somatic symptom disorders	3	1
Pervasive developmental disorders (PDD)	3	1
Personality disorders	3	1
Anxiety disorders	3	1
Mania episode	2	0.7
Posttraumatic stress disorder (PTSD)	2	0.7
Schizoaffective disorders	1	0.3
Substance use disorders	1	0.3
OCD	1	0.3
Cyclothymia	1	0.3

In 140 individuals (48.6%) comorbid conditions occurred. These included the following: harmful use of psychoactive substances (13.2%), pervasive developmental disorders – PDD (12.5%), BD (12.2%), ADHD (9.4%), intellectual disability (3.5%), eating disorders (2.4%), psychoactive substance use (1.7%), obsessive-compulsive disorder – OCD (1.7%), fetal alcohol syndrome (1.4%), tics (1.4%), traits of abnormally developing personality towards dissociative personality (1%), behavioral disorders (1%), reactive attachment disorders (1%), gender incongruence of childhood (0.7%), reaction to severe stress and adjustment disorders (0.3%), and dissociative disorders (0.3%). Moreover, 34% of the studied individuals reported school difficulties, and 15.6% repeated a class. Among those whose documentation was analyzed, 37.8% admitted to drinking alcohol, 27.4% – to using drugs and 35.4% – to smoking cigarettes. Additionally, 17.4% of the patients experienced trauma in the past. In 22.2% elevated mood was observed after antidepressants.

Studied individuals were most frequently hospitalized during mixed episodes – 137 patients (47.6%). The remaining ones experienced depressive episodes during hospitalization – 54 individuals (18.7%) and manic and hypomanic episodes – 97 patients (33.7%). Tables 3-5 present specifications of particular symptoms taking into account the type of episode during hospitalization and confirmed correlations between some studied symptoms and BD episodes.

Table 3. Specification of qualitative variables of the examined symptoms during hospitalization depending on the type of BD episode – criterial symptoms

Variable	Total	Mania and hypomania episode	Depression episode	Mixed episode	χ^2	p
	n = 288	n = 97	n = 54	n = 137		
Mood swings	176 (61.2%)	24 (13.6%)	18 (10.2%)	134 (76.1%)	149.16	<0.001
Irritability	224 (77.8%)	79 (35.3%)	33 (14.7%)	112 (50%)	10.68	<0.01
Loss of interests	80 (27.8%)	0 (0%)	35 (43.8%)	45 (56.3%)	75.99	<0.001
Decreased mood	158 (54.9%)	0 (0%)	53 (33.5%)	105 (66.5%)	184.99	<0.001

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Tearfulness	75 (26.1%)	0 (0%)	19 (25.3%)	56 (74.7%)	52.15	<0.001
Decreased energy	72 (25%)	0 (0%)	38 (52.8%)	34 (47.2%)	93.76	<0.001
Shorter sleep	146 (50.7%)	54 (37%)	27 (18.5%)	65 (44.5%)	1.55	0.461
Longer sleep	24 (8.4%)	1 (4.2%)	11 (45.8%)	12 (50%)	17.05	<0.001
Circadian rhythm disruption	72 (25%)	18 (25%)	15 (20.8%)	39 (54.2%)	3.25	0.197
Hypobulia	53 (18.5%)	0 (0%)	33 (62.3%)	20 (37.7%)	88.79	<0.001
Psychomotor retardation	27 (9.4%)	0 (0%)	14 (51.9%)	13 (48.1%)	27.45	<0.001
Decreased appetite	48 (16.7%)	5 (10.4%)	17 (35.4%)	26 (54.2%)	18.32	<0.001
Increased appetite	21 (7.3%)	6 (28.6%)	5 (23.8%)	10 (47.6%)	0.48	0.785
Suicidal thoughts	218 (75.7%)	51 (23.4%)	51 (23.4%)	116 (53.2%)	44.5	<0.001
Suicidal attempts	91 (31.6%)	20 (22%)	20 (22%)	51 (56%)	8.32	<0.05
Anhedonia	64 (22.3%)	0 (0%)	32 (50%)	32 (50%)	70.67	<0.001
Loss of trust, self-respect	46 (16%)	0 (0%)	25 (54.3%)	21 (45.7%)	55.48	<0.001
Feeling of remorse	31 (10.8%)	0 (0%)	15 (48.4%)	16 (51.6%)	28.09	<0.001
Concentration problems	106 (36.9%)	34 (32.1%)	18 (17%)	54 (50.9%)	0.81	0.67
Body mass loss	32 (11.2%)	5 (15.6%)	11 (34.4%)	16 (50%)	8.22	<0.05
Body mass gain	9 (3.2%)	2 (22.2%)	3 (33.3%)	4 (44.4%)	1.43	0.488
Arousal	127 (44.1%)	74 (58.3%)	0 (0%)	53 (41.7%)	84.99	<0.001
Increased activity	136 (47.3%)	80 (58.8%)	0 (0%)	56 (41.2%)	98.9	<0.001
Increased talkativeness	132 (45.9%)	68 (51.5%)	1 (0.8%)	63 (47.7%)	65.09	<0.001
Increased sexual drive	80 (27.8%)	40 (50%)	2 (2.5%)	38 (47.5%)	24.36	<0.001
Reckless spending	5 (1.8%)	4 (80%)	0 (0%)	1 (20%)	5.01	0.082
Excessive easiness in establishing relations	133 (46.2%)	76 (57.1%)	0 (0%)	57 (42.9%)	87.88	<0.001
Racing thoughts	100 (34.8%)	57 (57%)	6 (6%)	37 (37%)	41.61	<0.001
Lowered self-esteem	38 (13.2%)	0 (0%)	23 (60.5%)	15 (39.5%)	56.09	<0.001
Increased self-esteem	66 (23%)	45 (68.2%)	0 (0%)	21 (31.8%)	50.78	<0.001

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Fixed change in activities or plans	51 (17.8%)	35 (68.6%)	0 (0%)	16 (31.4%)	37.51	<0.001
Risky behaviors	98 (34.1%)	55 (56.1%)	2 (2%)	41 (41.8%)	45.36	<0.001
Elevated mood	194 (67.4%)	85 (43.8%)	0 (0%)	109 (56.2%)	137	<0.001

Percentage values in the Total column designate % of all the studied individuals, while in the remaining columns – the frequency of a given episode in the group of individuals manifesting a given symptom.

In the studied group, 64.8% of individuals with depression and 32.8% with a mixed episode reported that they had lost their previous interests. A decreased mood was observed in 98.1% of the individuals during depression and in 76.6% during a mixed episode. In the group of patients with depression, 35.2% of children were tearful and in the mixed episode group – 40.9%. While analyzing the BD episodes separately, in the mixed episode almost every fourth patient experienced decreased energy, while in depression the percentage was 70.4%. While analyzing particular BD episodes, in the depression group 61.1% of patients reported hypobulia, and in the mixed episode group – only 14.6%. Psychomotor retardation was observed in 25.9% of depression patients and 9.5% of mixed episode patients. In almost half of patients with depression (46.3%) and 15.3% of patients with a mixed episode in the course of BD the loss of self-trust and self-respect was observed. In the mania/hypomania and mixed episodes, 81.4% and 81.8% of patients, respectively, manifested irritability, while in depression – 61.1%.

An elevated mood was reported by 87.6% of patients with manic episodes, and 79.6% with mixed episodes. Furthermore, 38.7% of patients with mixed episodes and 76.3% of patients with mania/hypomania episodes were agitated. In 40.9% of individuals with mixed episodes and 82.5% of those with mania/hypomania episodes increased activity was observed. Increased talkativeness was noted in only 1.9% of patients with depression, 46% – with mixed episodes and 70.1% with mania/hypomania episodes. In the group of children as much as 78.4% with mania/hypomania episodes and 41.6% with mixed episodes experienced a facilitation in establishing relations with others. Among the studied patients with mania/hypomania, 36.1% manifested a constant change in activities or plans and among those with mixed episodes – 11.7%.

Almost all patients with mixed episodes reported mood swings (97.8%). In the group of depression episode patients, 33.3% reported mood swings during hospitalization, and among those with mania/hypomania episodes – almost every fourth patient. In the group of patients with a manic episode, only 1% reported prolonged sleep, and in the group of mixed episodes it was 8.8%. Meanwhile, 20.4% of patients with depression reported this symptom. In the depression episode group and in the mixed episode group 94.4% and 84.7%, respectively, experienced suicidal thoughts. In the group of patients with mania/hypomania episodes this percentage was lower, and it equaled 52.6%. Every fifth child with a mania episode had a suicidal attempt. In the depression and mixed episode groups this percentage was higher – it equaled around 37%. As many as 41.2% of patients with mania/hypomania, 27.7% with a mixed episode and only 3.7% with depression manifested increased sexual drives. During

mania/hypomania episodes 58.8% of individuals reported racing thoughts. During mixed episodes, it was 27% and during depression – 11.1%. As many as 56.7% of patients during mania/hypomania episodes engaged in risky behaviors, 29.9% in the mixed episode and only 3.7% in depression episodes.

Table 4. Specification of qualitative variables regarding the assessed symptoms during hospitalization depending on the type of episode – additional symptoms based on classifications ICD-10 and DSM-5

Variable	Total	Mania/hypomania episode	Depression episode	Mixed episode	χ^2	p
	n = 288	n = 97	n = 54	n = 137		
Anxiety*	67 (23.3%)	14 (20.9%)	22 (32.8%)	31 (46.3%)	13.46	<0.01
Somatic symptoms	53 (18.5%)	11 (20.8%)	13 (24.5%)	29 (54.7%)	5.08	0.079
Mood congruent delusions	39 (13.6%)	17 (43.6%)	12 (30.8%)	10 (25.6%)	9.35	<0.01
Auditory pseudohallucinations	14 (4.9%)	6 (42.9%)	6 (42.9%)	2 (14.3%)	8.36	<0.05
Visual hallucinations	28 (9.8%)	8 (28.6%)	5 (17.9%)	15 (53.6%)	0.49	0.783
Mood incongruent delusions	81 (28.2%)	26 (32.1%)	14 (17.3%)	41 (50.6%)	0.43	0.805
Mood congruent auditory hallucinations	7 (2.5%)	3 (42.9%)	1 (14.3%)	3 (42.9%)	0.29	0.865
Mood incongruent auditory hallucinations	27 (9.4%)	10 (37%)	6 (22.2%)	11 (40.7%)	0.58	0.747
Other hallucinations	12 (4.2%)	6 (50%)	0 (0%)	6 (50%)	3.35	0.187

* – missing data omitted

Percentage values in the column “Total” mean % of the total studied individuals, while in the remaining columns – frequency of a given episode in the group of individuals manifesting a given symptom.

In the group of depression patients, 40.7% of children and adolescents reported anxiety, in the mixed episode group – 22.6%, and in mania/hypomania – 14.4%. Almost every fifth patient with a mania episode (17.5%) and depression (22.2%) experienced mood-congruent delusions. In the mixed episode group, only 7.3% of patients observed this symptom. Auditory pseudohallucinations were observed in 1.5% of patients with a mixed episode, 6.2% with a mania episode and 11.1% with depression.

Table 5. Specification of qualitative variables regarding the assessed symptoms during hospitalization depending on the type of BD episode – symptoms not clearly specified within diagnostic classifications ICD-10 and DSM-5

Variable	Total	Mania/hypomania episode	Depression episode	Mixed episode	χ^2	p
	n = 288	n = 97	n = 54	n = 137		
Bizarre behaviors	99 (34.4%)	44 (44.4%)	13 (13.1%)	42 (42.4%)	8.57	<0.05
Active aggression	116 (40.3%)	56 (48.3%)	5 (4.3%)	55 (47.4%)	33.88	<0.001
Verbal aggression	144 (50%)	60 (41.7%)	13 (9%)	71 (49.3%)	20.15	<0.001
Self-inflicted injuries	184 (63.9%)	35 (19%)	42 (22.8%)	107 (58.2%)	49.02	<0.001
Changes in appearance	57 (19.8%)	16 (28.1%)	8 (14%)	33 (57.9%)	3.1	0.212
Hygienic neglect	29 (10.1%)	11 (37.9%)	1 (3.4%)	17 (58.6%)	5.03	0.081
Runaways from home	90 (31.3%)	42 (46.7%)	6 (6.7%)	42 (46.7%)	16.77	<0.001
Criminal behaviors	44 (15.3%)	23 (52.3%)	2 (4.5%)	19 (43.2%)	11.13	<0.01
Withdrawal from peer relations	94 (32.7%)	5 (5.3%)	43 (45.7%)	46 (48.9%)	87.62	<0.001
Fantasizing, unrealistic lies	21 (7.3%)	10 (47.6%)	1 (4.8%)	11 (52.4%)	3.57	0.167

Percentage values in the column “Total” mean % of the total studied individuals, while in the remaining columns – frequency of a given episode in the group of individuals manifesting a given symptom.

In the groups of patients during mania/hypomania and mixed episodes there was a similar percentage of active aggression cases – 48.3% and 47.4%, respectively. On the other hand, verbal aggression was observed in 41.7% of mania/hypomania episodes and in 49.3% during mixed episodes. While analyzing the group of patients with mania/hypomania episodes separately, 36.1% of patients inflicted self-injuries and in the depression and mixed episodes the percentage was 78%. There was also a correlation between a BD episode and runaways from home before hospitalization, criminal behaviors and withdrawal from peer relations. In the group of children with a history of runaways, the highest percentage was for children with mania/hypomania and mixed episodes (46.7%). Almost every fourth patient with a mania/hypomania episode, 13.9% of children with a mixed episode and only 3.7% of children with depression manifested criminal behaviors. Among the studied patients with a depression episode, 79.6% withdrew from peer relations. For the mixed episode this percentage was 33.6% and for mania/hypomania – 5.2%.

Discussion

The mean age of onset of illness of children whose medical documentation was analyzed was 13.6 years. It was slightly lower than in the study of Goetz et al. [4]

carried out among pediatric patients with BD, i.e., 14.9, and similar to the mean onset age in the study of Connor et al. [17] – 13.2 ± 3.3 (in pediatric patients with BD treated between 2006 and 2012). As many as 86.5% of subjects from DAPP after the onset of the first symptoms from the bipolar spectrum had an initial diagnosis other than BD/manic episode. This shows that the clinical picture of developing BD in the pediatric population is often ambiguous, difficult to diagnose and resembles other (sometimes more common in this age group) mental disorders. The most common first diagnosis was depression (32.6%), which confirms numerous reports that BD very often begins with an episode of depression, and the group of young people with this diagnosis should be subject to special supervision for the risk of BD. In the study of Goetz et al. [4], 80% of patients were primarily treated for other disorders, and the original diagnosis was also usually depression (24%). Less often, patients in the Czech Republic were diagnosed with psychosis, OCD, ADHD, mixed/manic episode, adjustment disorders, anorexia nervosa, anxiety disorders, behavioral disorders or unspecified personality disorders [4]. According to Faedda et al. [18], depression with accompanying psychotic symptoms, cyclothymia, and also other psychotic disorders are the precursors of BD.

Furthermore, it is believed that children and adolescents with BD usually manifest other comorbid disorders (20% to 80%), mainly behavioral and anxiety disorders, ADHD, and in teenagers – psychoactive substance use [19-23]. Among the studied patients at the Clinical Ward of DAPP in Sosnowiec, 48.5% manifested comorbid disorders. Perlis et al. [24] believe that the early onset of BD is correlated with a higher probability of anxiety disorders and psychoactive substance use. The most frequent mental disorders among the hospitalized patients at the Clinical Ward in Sosnowiec included the following: harmful use of psychoactive substances (13.2%), PDD (12.5%), BP traits (12.2%) and ADHD (9.4%). On the other hand, among the studied Czech children, 30% manifested anxiety disorders, 19% – specific learning disabilities, 15% – ADHD [4]. In the meta-analysis of Van Meter et al. [11] the most frequent BD-accompanying disorder among pediatric patients was ADHD (53%). It is believed that ADHD is more frequent in BD patients than in the general population, and comorbidity of ADHD and behavioral disorders in children and adolescents with BD correlates with worse outcomes in treating manic or mixed episodes [14]. Among the patients at the DAPP Clinical Ward in Sosnowiec, ADHD was also more common than in the general population (9.4% vs. 5%). However, in Sosnowiec, the ratio of children with BD and ADHD was lower than in the meta-analysis of Van Meter et al. [11], in which it was additionally observed that oppositional-defiant disorder co-occurred in 42% of individuals and behavioral disorders in 27%. In Sosnowiec, behavioral disorders were diagnosed much less frequently (1%); however, there were a lot of symptoms characteristic of behavioral disorders, e.g., active aggression (40.3%), verbal aggression (50%), irritability (77.8%), runaways from home (31.3%) and criminal behaviors (13.3%). Van Meter et al. [11] also estimated that the comorbidity of pediatric BD with anxiety disorders is 23% and with psychoactive substance use is 9%. On the other hand, the meta-analysis of Frías et al. [25] revealed that pediatric patients with BD also manifested the following: anxiety disorders (54%), ADHD (48%), destructive behavioral disorders (31%) and psychoactive substance use (31%).

At the DAPP Clinical Ward in Sosnowiec, 37.8% of the studied individuals admitted to drinking alcohol and 27.4% – to taking drugs. Therefore, the outcomes of using psychoactive substances in the Clinical Ward are lower than those assessed with questionnaire studies among young people in Poland, which may suggest that patients are not willing to admit to experimenting with psychoactive substances. In a study carried out in 2019, depending on the age group, 80% or 92.8% of pupils in our country at least once in their lives drank alcohol, and 21.4% of younger and 37% of older pupils at least once tried marijuana and hashish [26]. At the DAPP Clinical Ward in Sosnowiec, 15.6% of patients with BD repeated a school grade and 66% experienced school difficulties. In the study of Pedersen et al. [27], a correlation between obtained school grades and further BD development was noted (e.g., between disorder development and very low results in mathematics, but also very high results in the Danish language, yet – only in females). In this study, 17.4% of patients at the DAPP Clinical Ward experienced trauma. However, in the study of Goetz et al. [4] it was observed that children who were diagnosed before the age of 13 experienced trauma more frequently in the past as compared to those who were diagnosed with BD at an older age.

The most frequently observed first episode of BD among the studied individuals was depression (45.5%), which is in line with the observations from the Czech Republic, where depression was the first episode of BD in 56% of pediatric patients [4]. In the study of Axelson et al. [19] on BD precursors in children it was also observed that depression episodes preceded mania/hypomania episodes in around 2/3 of cases. Duffy et al. [28] had a similar observation that children whose parents suffered from BD usually experienced depression as the first episode of mood disorders. Furthermore, young patients with depression in the course of BD frequently manifested atypical symptoms and abnormal reactions to antidepressants, i.e., occurrence of mania/hypomania or a mixed episode as well as more frequent auto-aggressive behaviors [6, 29]. In 22.2% of patients at the DAPP Clinical Ward in Sosnowiec a considerable increase of mood was observed once antidepressants had been introduced. On the other hand, in their publication of 2013, Baldessarini et al. [30] observed that in 8.18% of patients with a major depressive episode treated with antidepressants a mania-like reaction was observed as a reaction to the applied pharmacotherapy, and in 3.29% of patients the diagnosis was changed to BD. It should also be mentioned that according to the DSM-5 classification, mania episodes observed during antidepressant therapy which persist at a full-blown level in the period exceeding the applied pharmacotherapy may lead to the diagnosis of BD [3].

The most frequently observed symptoms in patients at the DAPP Clinical Ward during episodes of depression included the following: decreased mood (98.1%), suicidal thoughts (94.4%), withdrawal from peer relations (79.6%), self-inflicted injuries (77.8%), reduced energy (71.7%), loss of interests (64.8%), irritability (61.1%), hypobulia (61.1%), anhedonia (59.3%), shorter sleep (50%). To compare, the study of Goetz et al. [4] revealed that during the episodes of depression the most common symptoms were: sadness, anxiety, sleeplessness, tearfulness, verbal aggression, self-inflicted injuries, irritability, decreased energy, hypobulia, and psychomotor retardation. In many studies irritability instead of decreased mood can be observed in children

with a depression episode in the course of BD [5]. Interestingly, among those studied at the DAPP Clinical Ward with irritability, half had mixed episodes, 35% had mania/hypomania episodes and only 15% had depression. During mania/hypomania and mixed episodes, 81% and 82% of patients, respectively, were irritable, while during depression – 61%.

During mania/hypomania episodes in patients at the DAPP Clinical Ward the most frequently observed symptoms included the following: elevated mood (87.6%), increased activity (82.5%), irritability (81.4%), easiness in establishing relations (78.4%), arousal (76.3%), increased talkativeness (70.1%), verbal aggression (61.9%), racing thoughts (58.8%), active aggression (57.7%), risky behaviors (56.7%) and shorter sleep (55.7%), which partially correlates with the outcomes of other studies as well as the diagnostic criteria in force. In the meta-analysis of 20 studies on pediatric BD the following symptoms were most frequently observed in the mania episodes: increased energy (79%), irritability (77%), emotional lability (76%), distractibility (74%), goal-oriented activity (72%), euphoria/elevated mood (64%), pressured speech (63%), hyperactivity (62%), racing thoughts (61%), and poor judgement (61%) [9], and in the study of Goetz et al. [4] – increased motor activity, energy, oppositional behaviors, elevated mood, increased talkativeness, decreased need for sleep, goal-oriented hyperactivity, irritability, increased social interaction, and physical aggression. Some publications suggest that mania in young individuals is more frequently characterized by irritability than elevated mood [16]; however, other studies show that elevated mood is also a frequent symptom of mania in youth, and mania rarely manifests itself only with elevated mood or irritability, since both symptoms may coexist [8].

Among the patients at the DAPP Clinical Ward, during mania/hypomania episodes 87.6% experienced elevated mood and 81.4% were irritable. The following symptoms were not observed during mania/hypomania episodes: decreased mood, feeling of remorse, loss of interests, tearfulness, decreased energy, hypobulia, psychomotor retardation, loss of self-trust and self-respect, and lowered self-esteem, which – for obvious reasons – were observed entirely in patients during depression or mixed episodes. Among patients who experienced symptoms such as increased sexual drive, racing thoughts, history of runaways, and criminal and risky behaviors, the largest group consisted of those during episodes of mania/hypomania. It is believed that children and adolescents during mania are more verbally aggressive and conflictive [9]; nevertheless, aggressive behaviors are not among the diagnostic criteria to diagnose these BD episodes. Also, according to Safer et al. [10], young individuals – as contrasted with adults – are more frequently aggressive and irritable. Active and verbal aggression was observed in patients at the DAPP Clinical Ward during all BD episodes (but least frequently in patients with depression). In the group of patients during mania/hypomania and mixed episodes the percentage of actively aggressive cases was more or less the same – 48% and 47%, respectively, and verbally aggressive – 42% and 49%, respectively.

The studied individuals during mixed episodes usually manifested the following symptoms: fluctuating mood (97.8%), suicidal thoughts (84.7%), irritability (81.8%), elevated mood (79.6%), self-inflicted injuries (78.1%), decreased mood (76.6%), verbal

aggression (51.8%). On the other hand, in the study carried out in the Czech Republic, the most frequent symptoms in patients during mixed episodes were elevated mood, sadness, anxiety, increased talkativeness, oppositional behaviors, increased social interactions, increased motor activity, increased energy, risky behaviors, distractibility, and loss of social constraints [4]. It is believed that mixed episodes are more frequent in the pediatric population with BD than in adults and are related to a greater risk of suicidal attempts [12, 13], which could be confirmed by the outcomes of this study carried out at the DAPP Clinical Ward in Sosnowiec. The studied children with BD were most frequently hospitalized at the Pediatric Center due to mixed episodes. Among all DAPP Clinical Ward patients with suicidal thoughts, the largest group (53%) consisted of individuals who were during a mixed episode and 23% were during mania and depression. In the group of patients who had a suicide attempt, those during a mixed episode were the most numerous (56%). Also in the group of patients engaging in self-inflicted injuries, the highest percentage consisted of those in a mixed episode (58%). Furthermore, it was observed that among patients reporting anxiety (a symptom which may result in a more severe course of BD) the greatest percentage (i.e., 46%) consisted of patients during a mixed episode.

Prolonged sleep was the least common in the group of patients with a mania episode, while this symptom was similarly represented in depression and mixed episodes (46% and 50%, respectively). In patients with reported body mass loss, 50% were during a mixed episode, 34% – depressive episode and 16% – mania episode. Furthermore, among children who experienced withdrawal from peer relations, 49% were during a mixed episode.

An important limitation of the study was the fact that the study concentrated on analyzing medical documentation and was retrospective, which may affect its reliability. It should be emphasized that although during the analysis of the documentation attention was paid to all data and symptoms evaluated in the study, the interview and observations of the mental state of patients were described by various doctors and psychologists, which affects the accuracy of the collected information. In addition, the patients themselves or their caregivers also did not always provide the necessary information or did not report all the symptoms or problems that occurred. Hence, for example, the lack of data on the occurrence of anxiety in one respondent or the low rates of psychoactive substance use among patients.

Furthermore, obtained outcomes were affected by the fact that the analyzed documentation was restricted only to hospitalized individuals with BD. On the one hand, a longer, round-the-clock observation in hospital conditions by a group of doctors and psychologists enabled a more reliable diagnosis than it would be possible in ambulatory conditions, in which the final diagnosis is made by a single specialist, and thus the risk of misdiagnosis is higher. On the other hand, hospitalized patients usually manifest more intense symptoms, a more severe course of the disorder, more often manifest aggressive or auto-aggressive behaviors, positive symptoms, poorer reaction to applied pharmacotherapy, and have more comorbidities or an ineffective family environment. Therefore, to gain a better insight into the clinical picture of BD in the pediatric population, the studied group should be extended to patients from other

medical centers, including ambulatory patients, and the stability of the diagnosis in a longer perspective should be assessed.

Conclusions

1. In the studied population, the time from first symptoms of the bipolar spectrum to a proper diagnosis is 16.9 ± 14.7 months, which may lead to postponing accurate therapy, and, as a result – worsen the efficacy of pharmacotherapy and prognosis. On the other hand, the occurrence of subliminal or incomplete symptoms of BD are not synonymous with the development of type I or II BD; moreover, the benefits of pharmacotherapy in this group of patients will not always outweigh its side effects.
2. BD among hospitalized patients from the Silesian Province usually starts with an episode of depression. This is also the most frequent first diagnosis made to BD patients before the proper diagnosis; therefore, children and adolescents with this diagnosis should be particularly monitored for their risk of developing BD.
3. Almost half of children and adolescents with BD treated at the DAPP Clinical Ward manifest comorbid disorders, which may affect the clinical picture of BD in this population. Among the hospitalized patients with BD, most patients present a history of harmful use of psychoactive substances. Furthermore, the most frequent comorbidities are PDD, traits of abnormally developing personality towards BP, and ADHD.
4. Study outcomes show a significant frequency of some abnormal symptoms in this population, such as irritability, anxiety, suicidal thoughts, mood-congruent delusions and aggressive behaviors. This may be helpful both in the diagnostic process of children and adolescents and for introducing appropriate therapy.

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