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CHANGING DIAGNOSTIC CATEGORY IN DEVELOPMENT PSYCHIATRY

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SUMMARY

Introduction: *Many children and adolescents have mental problems that undermine their normal development and functioning. It is estimated that about 10% of children and adolescents suffer from mental disorders at a sufficiently severe level to cause some degree of damage and require treatment.*

Aim: *The aim of this paper is to determine whether there have been changes in the diagnostic categories in developmental psychiatry in children and adolescents treated at the Department for Children and Adolescent Psychiatry for the last fifteen years.*

Subjects and methods: *The survey includes 844 patients treated at the Department for Child and Adolescent Psychiatry of University Clinical Center of the Republic of Srpska in the period from April 2002 to September 2017, involving only children and adolescents who were hospitalized for the first time. The sample consisted of 453 female subjects (54, 67%) and 391 male subjects (46, 33%). Subjects were divided into three groups: group 1 - hospitalization in the period from 2002 to 2007; group 2 - hospitalization in the period from 2008 to 2012; group 3 - hospitalization in the period from 2013 to September 2017.*

Results: *Female subjects accounted for more than half of the subjects within each group, with a mild increase in the number of patients in the last 4 years. In the overall sample, adolescents, aged 13 to 18 (51.66%) were the most frequent, with the lowest number of subjects under 6 years of age (3.91%). In the overall sample, the most frequent are: psychotic disorders in 18.60% of subjects; behavioral disorders and emotions in 17, 42% of subjects; suicide attempt, in 14.34% of subjects. By comparing data by groups, there has been a decline in psychotic disorders, and since 2008, adapting disorders and behavioral and emotional disorders have been most frequently diagnosed. There is an increase in the number of respondents who come from incomplete families in the last few years. About one-third of the sample (33.89%) were exposed to one or more types of abuse. 43.13% of children and adolescents with poor socio-economic status. Comorbid diseases are present in 5.92% of children and adolescents. In 26.18% of the sample, psychiatric disorders are present in the family history. The abuse of psychoactive substances was observed in 2.61% of adolescents, and this number has been increasing for the last five years. Family dysfunction is present in 57.35% of children and adolescents.*

Conclusion: *In our study, there was an increase in the number of children and adolescents with behavioral disorders and adjustment disorders, as well as an increase in family dysfunctionality and psychoactive substances abuse in adolescents.*

Key words: *diagnostic categories – children – adolescents - psychological disorders*

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INTRODUCTION

According to World Health Organization data, 10-20% of children and adolescents experience some mental disorder at global level (Mental Health Action Plan 2013-2020). Mental health disorders are one of the leading causes of disabilities in young people in all parts of the world (Merikangas et al. 2009), indicating the need and importance of early disorder recognition, timely interventions and comprehensive measures for prevention. It is assumed that 50% of all mental disorders in adults begin in adolescence (Belfer 2008).

Although studies estimate that 1 out of 3-4 adolescents meets some criteria for Diagnostic and Statistical Manual of Mental Disorders (DSM), only a small number of young people have serious problem or damage requiring treatment or justifying interventions (Brauner 2006). There is an increasing number of young people who abuse psychoactive substances with shifting the age of abuse to a younger age. It is estimated that 1 out of 10 young people meets the criteria for narcotic drug abuse (Kaplan & Sadock 2005). Different studies show a different incidence of depressive disorders in development age, with a mean assessment of prevalence of 4.0% and a range from 0.2% to 17% for major depression. Recent studies on mood disorders show a range from 0.6% in the UK to 3.0% in Puerto Rico (Costello et al. 2004).

Prevalence estimates of subtypes of depressive disorders and syndromes are greater than major depression. Studies on depression in adolescents have shown that rates of new depressive episodes increase from 1% to 2% at the age of 13 and from 3% to 7% at the age of 15 (Lewinsohn et al. 2000).

A major depressive disorder and bipolar disorder are associated with many other disorders, including hyperactivity disorder (ADHD), anxiety disorders and/or oppositional defiant disorder (ODD) (Child Adolesc Psychiatry Clin N Am 2002).

The prevalence rate of bipolar disorder among young people ranges from 0% to 2.1% and the prevalence rate of hypomania varies between 0% and 0.4%. The results of prospective studies on adolescents show that anxiety disorders can be an early manifestation of bipolar disorder (Johnson & Nowak 2002). The prevalence of anxiety disorders was 8% with an extremely wide range of estimates (e.g. 2% to 24%) (Canino et al. 2004).

Data from prospective studies show that anxiety already increases at the age of 5 in girls, with further continuous increase in adolescence. Although the anxiety rate among boys also increases during childhood and adolescence, the increase is far smaller than in girls and begin to decrease in late adolescence (Br J Psychiatry 2004).

The ADHD rate varies and the mean rate is 3% with higher incidence in boys. Some research links it with socioeconomic status (Arch Pediatr Adolesc Med 2007).

The incidence of behavioral disorders is 6% with a range from 5% to 14%. Prevalence estimates in the UK were 2.3% for ODD and 1.5% for CD, while slightly higher rates were found in the latest US studies ranging from 2.8% to 5.5% for ODD and from 2.0% to 3.32% for CD (Roberts 2007).

Comorbidity studies have shown a high degree of association between behavioral disorders and ADHD. Likewise, there is a strong correlation between behavioral disorders with mood disorders and anxiety.

The mean value of alcohol abuse or drug abuse in adolescents is 5%, ranging from 1% to 24%, depending on the study.

The Great Smoky Mountains study which lasted several years, evaluated the number of young people with emotional and behavioral disorders and included 1073 children aged 9 to 16 years. The study showed a dramatic increase of abuse disorders rate with age and prevalence rate of 0.3% at the age of 13, 1.4% at age of 14; 5.3% at age of 15 and 7.6% at age 16 (The Great Smoky Mountains Study).

Gender differences in the prevalence rates of psychoactive substances abuse disorders are inconsistent. While several studies have shown that the prevalence rate for men and women is equal, other studies show that men have higher rates than women (J Psychiatr Res 2007).

SUBJECTS AND METHODS

A retrospective study was conducted in September 2017 on a sample of 844 children and adolescents who were treated at the Department for Child and Adolescent Psychiatry of University Clinical Center of the Republic of Srpska in Banja Luka, during period from April 2002 to September 2017. The study included only children and adolescents who were hospitalized for the first time. The sample consisted of 453 female subjects (54.67%) and 391 male subjects (46.33%). The subjects were divided into three groups: group 1 - patients who were treated during period from April 2002 to the end of 2007; group 2 - patients who were treated during period from 2008 to the end of 2012 and group 3 - patients who were treated during period from 2013 to September 2017. Socio-demographic data and data on exposure to violence, family functionality, family history of mental disorders and mental disorders due to which subjects were hospitalized were collected. The results are presented in tables and figure.

RESULTS

Female subjects account for more than half of the subjects within each group, with a mild increase in the number of female patients in the past 4 years. In total sample, the most frequent were adolescents, i.e. subjects aged 13 to 18 (51.66%), followed by subjects aged 6 to 13 years (25.59%), and the least frequent were children under 6 years of age (3.91%). 364 subjects (43.13%) were with poor socioeconomic status, while just 80 subjects (9.48%) were with good socioeconomic status. There was the highest number of subjects (49.45%) with poor socioeconomic status within group 1, while in group 2 and group 3 subjects were with average socioeconomic status (Table 1).

Table 1. Sex/socioeconomic status

	Group 1				Group 2				Group 3			
Age	<6	6-13	13-18	>18	<6	6-13	13-18	>18	<6	6-13	13-18	>18
Sex												
Male	3 (1.11%)	45 (16.61%)	39 (14.39%)	35 (12.92%)	15 (4.21%)	70 (19.66%)	70 (19.66%)	17 (4.78%)	10 (4.61%)	38 (17.51%)	46 (21.20%)	3 (1.38%)
Female	0 (0.00%)	18 (6.64%)	87 (32.10%)	44 (16.24%)	3 (0.84%)	27 (7.58%)	111 (31.18%)	43 (12.08%)	2 (0.92%)	18 (8.29%)	83 (38.25%)	17 (7.83%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)
Socioeconomic status												
Low	1 (0.37%)	37 (13.65%)	57 (21.03%)	39 (14.39%)	3 (0.84%)	6 (1.69%)	16 (4.49%)	6 (1.69%)	3 (1.38%)	4 (1.84%)	15 (6.91%)	0 (0.00%)
Middle	2 (0.74%)	24 (8.86%)	52 (19.19%)	32 (11.81%)	9 (2.53%)	39 (10.96%)	94 (26.40%)	36 (10.11%)	5 (2.30%)	29 (13.36%)	66 (30.41%)	12 (5.53%)
High	0 (0.00%)	2 (0.74%)	17 (6.27%)	8 (2.95%)	6 (1.69%)	52 (14.61%)	71 (19.94%)	18 (5.06%)	4 (1.84%)	23 (10.60%)	48 (22.12%)	8 (3.69%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)

Table 2. Family functioning/family history of psychiatric illness

	Group 1				Group 2				Group 3			
Age	<6	6-13	13-18	>18	<6	6-13	13-18	>18	<6	6-13	13-18	>18
Family functioning												
Functional	1 (0.37%))	40 (14.76%)	82 (30.26%)	52 (19.19%)	3 (0.84%)	47 (13.20%)	103 (28.93%)	34 (9.55%)	3 (1.38%)	22 (10.14%)	85 (39.17%)	12 (5.53%)
Dysfunctional	2 (0.74%)	23 (8.49%)	44 (16.24%)	27 (9.96%)	15 (4.21%)	50 (14.04%)	78 (21.91%)	26 (7.30%)	9 (4.15%)	34 (15.67%)	44 (20.28%)	8 (3.69%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)
Family history of psychiatric illness												
Yes	1 (0.37%)	21 (7.75%)	40 (14.76%)	30 (11.07%)	1 (0.28%)	24 (6.74%)	45 (12.64%)	11 (3.09%)	2 (0.92%)	10 (4.61%)	28 (12.90%)	8 (3.69%)
No	2 (0.74%)	42 (15.50%)	86 (31.73%)	49 (18.08%)	17 (4.78%)	73 (20.51%)	136 (38.20%)	49 (13.76%)	10 (4.61%)	46 (21.20%)	101 (46.54%)	12 (5.53%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)

Table 3. Complete family/abuse victims

	Group 1				Group 2				Group 3			
Age	<6	6-13	13-18	>18	<6	6-13	13-18	>18	<6	6-13	13-18	>18
Complete family												
Yes	3 (1.11%)	40 (14.76%)	75 (27.68%)	49 (18.08%)	15 (4.21%)	56 (15.73%)	115 (32.30%)	40 (11.24%)	9 (4.15%)	37 (17.05%)	66 (30.41%)	10 (4.61%)
No	0 (0.00%)	23 (8.49%)	51 (18.82%)	30 (11.07%)	3 (0.84%)	41 (11.52%)	66 (18.54%)	20 (5.62%)	3 (1.38%)	19 (8.76%)	63 (29.03%)	10 (4.61%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)
Abuse												
Yes	1 (0.37%)	29 (10.70%)	59 (21.77%)	32 (11.81%)	2 (0.56%)	25 (7.02%)	62 (17.42%)	18 (5.06%)	1 (0.46%)	9 (4.15%)	42 (19.35%)	6 (2.76%)
No	2 (0.74%)	34 (12.55%)	67 (24.72%)	47 (17.34%)	16 (4.49%)	72 (20.22%)	119 (33.43%)	42 (11.80%)	11 (5.07%)	47 (21.66%)	87 (40.09%)	14 (6.45%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)

Table 4. Comorbidity/psychoactive substance abuse

	Group 1				Group 2				Group 3			
Age	<6	6-13	13-18	>18	<6	6-13	13-18	>18	<6	6-13	13-18	>18
Comorbidity												
Yes	0 (0.00%)	6 (2.21%)	3 (1.11%)	2 (0.74%)	3 (0.84%)	6 (1.69%)	8 (2.25%)	3 (0.84%)	0 (0.00%)	8 (3.69%)	9 (4.15%)	2 (0.92%)
No	3 (1.11%)	57 (21.03%)	123 (45.39%)	77 (28.41%)	15 (4.21%)	91 (25.56%)	173 (48.60%)	57 (16.01%)	12 (5.53%)	48 (22.12%)	120 (55.30%)	18 (8.29%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)
Psychoactive substance abuse												
Yes	0 (0.00%)	0 (0.00%)	4 (1.48%)	3 (1.11%)	0 (0.00%)	0 (0.00%)	5 (1.40%)	1 (0.28%)	0 (0.00%)	0 (0.00%)	9 (4.15%)	0 (0.00%)
No	3 (1.11%)	63 (23.25%)	122 (45.02%)	76 (28.04%)	18 (5.06%)	97 (27.25%)	176 (49.44%)	59 (16.57%)	12 (5.53%)	56 (25.81%)	120 (55.30%)	20 (9.22%)
Total	3 (1.11%)	63 (23.25%)	126 (46.49%)	79 (29.16%)	18 (5.05%)	97 (27.24%)	181 (50.84%)	60 (16.86%)	12 (5.53%)	56 (25.80%)	129 (59.45%)	20 (9.21%)

Family dysfunctionality in terms of the presence of some kind of abuse, impaired family dynamics, cold, unfavorable emotional atmospheres was present in more than half of subjects (57.35%) out of total sample. 221 subjects (26.18%) had psychiatric disorders in their family history with a slight decrease of subjects with psychiatric disorders in their closer family in the past years (Table 2).

Out of total sample, 515 (61.02%) subjects were from complete families, while 329 (38.98%) subjects were from incomplete families. One third of subjects (33.89%) were exposed to one or more types of abuse or was a witness of family member abuse, while 46 subjects (5.45%) were victims of two or more different types of abuse (Table 3).

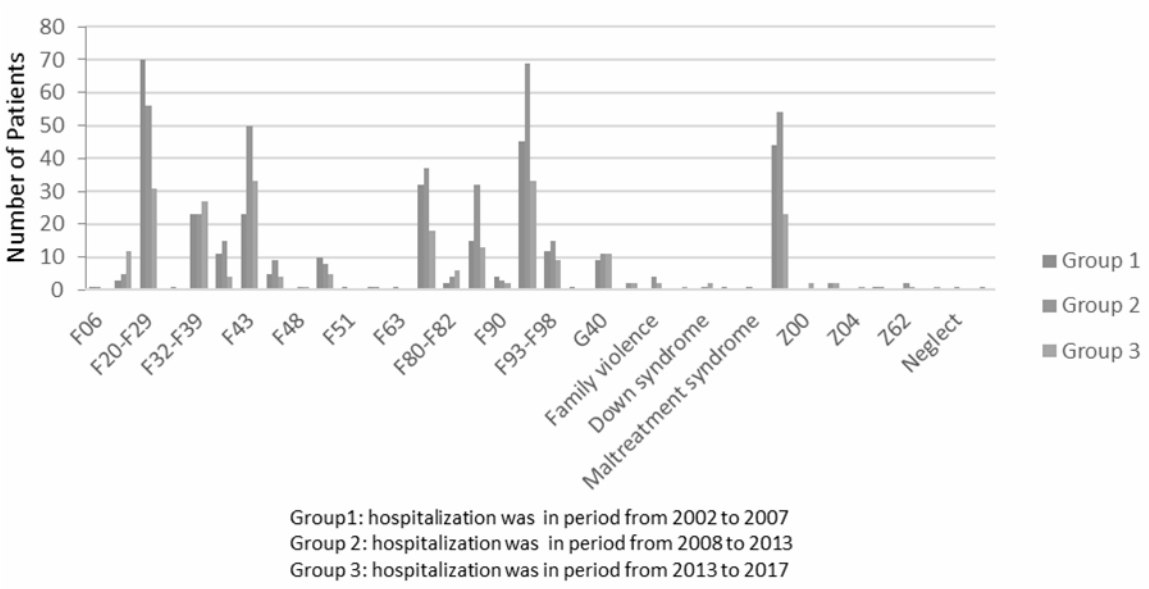

Figure 1. Data Review According to Diagnostic Categories

Comorbid disorders, including psychotic and somatic comorbid diseases were found in 50 subjects (5.92%). There was tendency of increase in comorbid disorders. Epilepsy as a special diagnostic entity appeared in 3.67% subjects out of total sample. Psychoactive substances abuse is incresing in the last few years (Table 4).

Observing total sample, the most common diagnostic categories were: psychotic disorders (F20-F29) diagnosed in 18.60% of subjects; behavioral disorders and emotions (F91-F92) diagnosed in 17.42% of subjects; and suicide attempt diagnosed in 14.34% of subjects. Other diagnostic categories are shown in Figure 1.

DISCUSSION

In total sample, the most common category were psychotic disorders diagnosed in 18.6% of subjects, mainly in female subjects (57.32%), with tendency to decline in recent years. In this diagnostic group, about a third of patients were exposed to some form of violence (34.15%). According to the Psychiatric Research Institute of the University of Arkansas, the occurrence of psychotic disorders before age of 13 is quite rare, 1: 40000 and before the age of 18 usually occurs in 1: 10000 cases, the incidence is twice higher in males compared to females (Brown & Bagley 2012).

The study found that behavioral disorders (F91 and F92) were the most common disorders in the last few years of follow-up, with incidence of 17.42% in total sample; of which 59.18% were males; and mostly adolescents (57.14%). Within this diagnostic group, 43.42% of patients were exposed to some form of violence.

These disorders show an increase in the number of hospitalized patients in the last few years. Some previous studies have shown that behavioral disorders are the most common childhood and adolescents disorders with a prevalence of 22.4% to age of 25 (Ihle 2004).

A survey conducted in the United States on a sample of 10 123 adolescents aged 13 to 18 showed that behavioral disorder was present in 6.8% of subjects, while oppositional defiant disorder was present in 12.6% of subjects; DSM IV criteria were used for diagnosis.

The behavioral disorder is more common in boys than in girls and many studies show that the incidence in boys is 3 to 4 times higher than in girls (Merikangas 2009).

Our research has shown that out of total sample, suicide attempt and suicidal behavior (third diagnosis by incidence) were present in 14.34% of subjects. In total number of patients who attempted suicide, female patients (79.34%) were prevalent, and according to age the majority of patients were aged 13 to 18 years (62.81%), and the lowest number of patients were aged 6 to 13 10.74%). Less than half of the patients were exposed to the violence (47, 29%).

Over the past decade, there has been an increase in the number of suicides worldwide. In the United States suicide is the third leading cause of death among young people (Current Opinion in Pediatrics 2009). The prevalence of suicidal ideation and suicide attempts in the US is high; in 2007, 14.5% of young people aged 14 to 18 had suicidal ideas, while 6.9% of young people of that age had at least one suicide attempt during previous year (Cash & Bridge 2009). Also, studies show that suicidal ideas and suicide attempts are more common in girls, but young men more often commit suicide.

The results of our study show that in the last few years, from 2013 to 2017, the third most prevalent diagnostic category were mood disorders (F32-39). This diagnostic category was present in about 9% of subjects with a tendency to increase in recent years.

Previous studies have estimated that the prevalence of major depression ranges from 0.2% to 17% (Costello et al. 2004); while recent studies show prevalence ranging from 0.6% in the United Kingdom to 3.0% in Puerto Rico (Dialogues in Clinical Neuroscience 2009). According to previous studies, the incidence of dysthymia among adolescents is lower than the incidence of major depression, while other depressive disorders, including episodes of mild depression and non-specific depression are more frequent than severe depressive episode (Journal of Child Psychology and Psychiatry 2005).

Other diagnostic categories were less frequent

42.04% of patients were from incomplete families in F20-F29 diagnostic group and more than half of patients (59.18%) in the diagnostic group F91-F92. In the group of patients who attempted suicide, about a third of patients were from incomplete family (30.58%).

Poor socioeconomic status had 40.76% of patients in F20-F29 diagnostic group and the highest number of patients (60.54%) with poor socioeconomic status was reported in F91-F92 diagnostic group. In the group of patients who attempted suicide, slightly more than a third of them were with poor status (33.06%).

Family dysfunctionality was present in 60.51% of patients in F20-F29 diagnostic category and in 72.11% of subjects in F91-F92 group. In the group of patients who attempted suicide, family dysfunctionality was present in 62.81% of subjects.

Observing the relationships between the three most common diagnostic groups in total sample, the highest percentage of patients from dysfunctional family were patients with F91-F92 diagnosis. Recent research show that authoritarian style of parenting, neglect and poor parenting are associated with higher levels of externalizing problem (Developmental Psychology 2017).

There is an increasing number of young people who abuse psychoactive substances, and age shifts to a lower age. In our sample, there is an increase in the number of adolescents treated for psychoactive substances abuse from 2.58% in the first group to 4.15% of subjects in the third group. The mean value of alcohol or drug abuse or addiction in studies on adolescents is 5% with a range from 1% to 24%. Gender differences in the prevalence rates of psychoactive substances abuse disorders are inconsistent. While several studies have shown that the prevalence rate between two sexes is the same, other studies show that the rate of psychoactive substances abuse is higher in males (Roberts et al. 2007).

CONCLUSION

In our study, there was an increase in the number of children from incomplete families, an increase in comorbid diseases and an increase in psychoactive substances abuse; while there was a slight decrease in the number of children with poor socioeconomic status and a decrease in the number of children who were abused.

Analyzing data on children and adolescents hospitalized at the Department for Child and Adolescent Psychiatry, a change in diagnostic categories was reported in terms of increasing the number of children and adolescents with behavioral disorders and adjustment disorders, as well as an increase in family dysfunctionality and psychoactive substances abuse in adolescents. There has been a decline in psychotic disorders, a decline in suicidal behavior and a decline in mental retardation in recent years.

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Contribution of individual authors:

Marija Burgić Radmanović: analyses and reviewed;
Ivana Simić: data analysis;
Sanela Burgić: literature searches and translation.

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