Demographic and clinical characteristics of child and adolescent psychiatry patients in a district state hospital in Eastern Anatolia

Doğu Anadolu'da bir ilçe devlet hastanesindeki çocuk ve ergen psikiyatrisi hastalarının demografik ve klinik özellikleri

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ABSTRACT

Aim: This study aims to determine the distribution of diagnoses for patients applying to the only child and adolescent psychiatry policlinic in the Doğubayazıt district of Ağrı province.

Materials and Method: A retrospective analysis was conducted on 1,095 subjects aged 0-18 who applied to the Child and Adolescent Psychiatry Outpatient Clinic of the Ministry of Health Doğubayazıt Dr. Yaşar Eryılmaz State Hospital between January and August 2023. Diagnoses were established based on the DSM-5 criteria classified by gender and age groups (0-6, 7-12, 13-18).

Results: The patients' mean age was 9.57 years (SD = 4.62), with 60.2% consisting of boys. Attention-deficit hyperactivity disorder (ADHD), specific learning disorders (SLD), and mild intellectual disability were the most common diagnoses among children aged 7-12. Global developmental delay (GDD) and developmental language disorder (DLD) were more prevalent in early childhood (0-6), while anxiety disorders and major depressive disorder (MDD) were more frequent in adolescents (13-18). Boys were diagnosed with ADHD, autism spectrum disorder (ASD), and DLD at higher rates, whereas girls were more frequently diagnosed with anxiety disorders, MDD, and obsessive-compulsive disorder (OCD). About 35% of patients received psychotropic medication, primarily methylphenidate, risperidone, and sertraline.

Conclusion: This study highlights significant gender and age differences in the distribution of mental health diagnoses among children and adolescents in the Doğubayazıt district of the Eastern Anatolia region of Türkiye. The findings contribute to a deeper understanding of childhood mental health issues and may contribute to more effective diagnostic and treatment strategies.

Keywords: Mental disorders, Attention deficit disorder with hyperactivity, Psychotropic drugs, Age factors

ÖZ

Amaç: Bu çalışmanın amacı, Ağrı ilinin Doğubeyazıt ilçesindeki tek çocuk ve ergen psikiyatrisi polikliniğine başvuran hastaların yaş ve cinsiyete göre tanı dağılımını belirlemektir.

Gereç ve Yöntem: Ocak ve Ağustos 2023 tarihleri arasında Doğubayazıt Dr. Yaşar Eryılmaz Devlet Hastanesi Çocuk ve Ergen Psikiyatrisi Polikliniğine başvuran 0-18 yaş arası 1,095 olgu üzerinde retrospektif bir analiz yapılmıştır. Tanılar, DSM-5 kriterlerine göre belirlenmiş olup cinsiyet ve yaş gruplarına (0-6, 7-12, 13-18) göre sınıflandırılmıştır.

Bulgular: Hastaların ortalama yaşı 9.57 yıl (SS = 4.62) olup, %60.2'si erkektir. 7-12 yaş grubunda en sık görülen tanılar dikkat eksikliği ve hiperaktivite bozukluğu (DEHB), özgül öğrenme güçlükleri (ÖÖG) ve hafif zihinsel yetersizliktir. Erken çocukluk döneminde (0-6 yaş) genel gelişimsel gecikme ve gelişimsel dil bozukluğu (GDB) daha yaygınken, ergenlerde (13-18 yaş) anksiyete bozuklukları ve major depresif bozukluk (MDB) daha sık görülmüştür. DEHB, otizm spektrum bozukluğu (OSB) ve gelişimsel dil bozukluğu (GDB) tanıları erkeklerde daha sık saptanmıştır. Buna karşılık, anksiyete bozuklukları, MDB ve obsesif-kompulsif bozukluk (OKB) daha sık kızlarda görülmüştür. Vakaların yaklaşık %35'ine psikotrop ilaçlar reçete edilmiş olup, en sık kullanılan ilaçlar sırasıyla metilfenidat, risperidon ve sertralindir.

Sonuç: Bu çalışma, Türkiye'nin Doğu Anadolu bölgesindeki Doğubeyazıt ilçesinde çocuk ve ergenler arasında ruh sağlığı tanılarının dağılımında belirgin cinsiyet ve yaş farklılıklarını vurgulamaktadır. Bulgular, çocukluk çağı ruh sağlığı sorunlarının daha iyi anlaşılmasına katkıda bulunmakta olup, daha etkili tanı ve tedavi stratejilerinin geliştirilmesine yardımcı olabilir.

Anahtar Kelimeler: Ruhsal bozukluklar, Dikkat eksikliği ve hiperaktivite bozukluğu, Psikotrop ilaçlar, Yaş faktörleri

INTRODUCTION

Childhood psychiatric disorders are a major public health concern due to their profound impact on affected children and adolescents and their families (1). These disorders occur in about 13% of children (2,3), and not only interfere with development but also cause long-term difficulties extending into adolescence and beyond (4). Understanding the prevalence, onset, and clinical features of these disorders is crucial for developing effective interventions and providing appropriate support (5). Recognizing the role of age and gender in shaping the onset and clinical manifestations of childhood psychiatric disorders is essential.

Studies have shown a steady increase in the incidence of these disorders as children transition into adolescence (6). Child growth and development can be broadly divided into three phases: early childhood (birth to 5-6 years), middle childhood (6 to 11-12 years), and adolescence (12 to 18-19 years) (7,8). Each phase presents unique challenges and vulnerabilities, with certain disorders, such as neurodevelopmental disorders, emerging predominantly in early childhood. In contrast, some types of anxiety disorders (panic disorder, generalized anxiety disorder), obsessive-compulsive disorders (OCD), and eating disorders often surface during adolescence (6,9). Separation anxiety disorder (SAD) and attention-deficit hyperactivity disorder (ADHD) tend to decrease from childhood to adolescence (10).

Gender differences in mental disorders in children and adolescents are twofold. Early-onset neuropsychiatric disorders, including autism spectrum disorder (ASD), developmental language disorders (DLD), ADHD, and specific learning disabilities (SLD), predominantly affect males. Whereas emotional disorders that onset during adolescence, such as depressive/mood disorders, anxiety disorders, and eating disorders, are significantly more prevalent among females (11). Nevertheless, the childhood versus adolescent onset classification does not fit well for some disorders, such as anxiety disorders. Anxiety disorders peak during adolescence and are more prevalent in girls than boys, even from an early age (12).

There are studies examining patients applying to child psychiatry clinics in our country from various aspects. In one study conducted in a university hospital in Istanbul, the most common diagnoses were determined to be ADHD, specific phobia, and oppositional defiant disorder (ODD); while ADHD, specific phobia, and ODD were the most common diagnoses in boys, it was reported that specific phobia, ADHD, and adjustment disorder were more common in girls. In addition, the most common diagnosis in the 5-12 age group was ADHD, while specific phobia was the most common diagnosis in the 13-18 age group (13). Similarly, in a study conducted in a university hospital in Edirne, it was reported that ADHD, SLD, and conduct disorder were the most common diagnoses in both genders in patients applying to the child and adolescent psychiatry outpatient clinic, and hyperactivity and attention deficit were more common in boys, while attention deficit and irritability were more common in girls. The study emphasized that 61.8% of the patients started psychopharmacological treatment and that

psychiatric polypharmacy was at a considerable rate (14). In another study conducted in a private child and adolescent psychiatry clinic in Sakarya, it was found that the most common diagnosis was ADHD, followed by patients without a psychiatric disorder diagnosis and those with generalized anxiety disorder (15). In a study conducted in a university hospital in Düzce, the mean age of patients applying to the child and adolescent psychiatry outpatient clinic was calculated as 9.90±4.07 years. The most common reasons for visiting were determined as attention deficit/hyperactivity, nervousness, and fear-anxiety; 90.5% of the patients were diagnosed with at least one psychiatric diagnosis, and the most common diagnoses were ADHD, anxiety disorders, behavioral disorders, and major depressive disorder (MDD). In addition, it was reported that methylphenidate was prescribed to 62.9% of the patients who started psychiatric treatment (16). Similarly, a study conducted in Batman, analyzing 2,489 patients in a child and adolescent psychiatry clinic, found that the most common diagnosis was ADHD, and the majority of patients were in the 0-6 age group. The study also noted that nervousness was the most frequent complaint and highlighted the need to consider regional differences when structuring psychiatric services in district settings (17).

Although multiple studies have been conducted in metropolitan and provincial centers in Türkiye (13,16,18,19), to our knowledge, no published research has specifically examined the demographic and clinical characteristics of child and adolescent psychiatry patients in district-level centers. In recent years, with the expansion of child and adolescent psychiatry policlinics, these services have also begun to be provided in district centers (20). However, considering the distinct sociodemographic and healthcare accessibility differences in district-level settings, such studies are essential to understanding referral patterns, service needs, and diagnostic distributions in these regions.

Therefore, the aim of our study is to address this gap by examining the demographic and clinical characteristics of child and adolescent psychiatric patients in a rural area in Türkiye. Furthermore, our objective is to explore the variations in psychiatric diagnoses across genders and age groups, spanning from early childhood to adolescence (0-6, 7-12, and 13-18). Through this endeavor, our study aspires to offer valuable insights into the landscape of childhood psychiatric disorders in district settings, informing future interventions and resource allocation efforts. Data from this study will allow us to make inferences on ways to develop more effective and resource-efficient intervention strategies for child and adolescent psychiatric services, especially in rural areas. In this context, such interventions may include early diagnosis, treatment approaches, and clinical support services. This study is the first comprehensive retrospective analysis conducted on a sample of children and adolescents who presented to a child and adolescent psychiatry clinic in a district-level center in Türkiye.

Based on similar studies in other provinces of the country, we hypothesized the following:
1. Neurodevelopmental disorders are more common in boys, while anxiety and depression disorders are more common in girls.

2. Middle childhood (7-12 years) is the period with the highest referral frequency, with ADHD being the most common diagnosis.

MATERIAL AND METHOD

Study Setting and Participants
This retrospective study was conducted at the only child and adolescent psychiatric clinic in Doğubayazıt, the largest district of Ağrı province in the East Anatolian region of Türkiye, with a population of about 121,000 (21). The study included a total of 1,100 cases between the ages of 0-18 years who sought medical attention between 16 January 2023 and 31 August 2023. It was conducted at the Child and Adolescent Psychiatry Outpatient Clinic of Doğubayazıt Dr. Yaşar Eryılmaz State Hospital. Patients who were seen more than once were considered according to primary diagnosis and medication.

This study was deemed ethically appropriate by the Ağrı İbrahim Çeçen University Ethics Committee University (Date of decision: 28/09/2023, Research Number: 210). Additionally, permission has been obtained from the owner of the dataset for the using of information in databases/repositories for research purposes.

Data collection tools
All patient electronic medical records were carefully reviewed. Patient records provided demographic information, symptoms, diagnoses, comorbidities, and treatment details, including prescribed psychotropic medication.

Procedure
The psychiatric evaluations were carried out by a child and adolescent psychiatrist. Clinical interviews in accordance with Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnostic guidelines (22). Psychiatric diagnoses were determined by a child and adolescent psychiatrist using DSM-5 criteria following clinical interviews.

For each case admitted to the clinic, a socio-demographic information form was filled out as part of the intake file, and some common psychopathological screening scales were completed by the patient, his family, or teachers. For example, these assessment tools include the Autism Behavior Checklist (ABC) for different forms and severity levels of ASD, Turgay's ADHD Evaluation Scale for ADHD, and the Revised Child Anxiety and Depression Scale, Child Versions (RCADS-CV) and Parent Versions (RCADS-PV) for depressive disorders and anxiety disorders (23–28). These data were recorded in the medical record in a standard procedure. Medical history and diagnostic information were in the computer records. All patient files and electronic records were carefully evaluated. Demographic profiles, symptomatology, psychiatric diagnoses, and use of psychotropic medication were thoroughly documented. The study excluded five patients whose psychiatric diagnosis could not be clarified.

Statistical analysis
The analyses were conducted using the SPSS 26.0 (SPSS Inc., Chicago, IL, USA) software package. Frequencies, percentages, mean, and standard deviation were computed for descriptive statistics. The chi-square test was used to compare categorical variables between groups. For small cell sizes of below 5, Fisher's exact test was used. When a significant difference was detected in multiple group comparisons, post hoc analyses were performed using Bonferroni correction to account for multiple comparisons. Statistical significance level was set at $p < 0.05$ for all tests.

RESULTS

Of the final sample of 1,095 patients with a mean age of 9.57 years (SD = 4.62), 60.2% were boys. The majority of the sample was aged 7-12 years (39.4%). Within this range, the most common ages were 9 (n = 90), 6 (n = 80), and 11 (n = 77).

Psychiatric diagnoses were categorized into three age groups: 0-6 years, 7-12 years, and 13-18 years. Due to the low number of observations for certain psychiatric diagnoses, sufficient cell frequencies could not be achieved for statistical analysis. The age groups were therefore reclassified. To obtain more reliable and meaningful results, the age groups were combined into 0-12 years and 13-18 years.

Global developmental delay (GDD) and DLD were high among children aged 0-6 years (all, $p < 0.001$); ADHD, SLD, mild intellectual disability, and articulation disorders were frequently observed among children aged 7-12 years ($p < 0.001$, $p < 0.001$, $p = 0.027$, $p = 0.003$, respectively). Anxiety disorders, MDD, and other diagnoses were observed more frequently among adolescents aged 13-18 years (all, $p < 0.001$) (see Table 1 and Table 2).

Psychiatric diagnoses were compared between genders. Results revealed that ADHD, ASD, and DLD were more prevalent in boys ($p < 0.001$, $p < 0.001$, $p = 0.012$, respectively), whereas anxiety disorders, MDD, and OCD were more common in girls ($p < 0.001$, $p = 0.001$, $p < 0.001$, respectively). A detailed comparison of psychiatric diagnoses by patient gender is shown in Table 3.

At least one DSM-5 diagnostic criterion was met for 71.0% (n = 777) of cases. The most common diagnoses were ADHD (n = 227, total), anxiety disorders (n = 179, total), and SLD (n = 93, total). The condition that caused the most deterioration in symptoms and affected the clinical course the most was determined as the 'primary diagnosis'. These primary diagnoses are listed in Figure 1.

The second most common comorbid diagnoses were ADHD (7.7%), anxiety disorders (4.5%), and SLD (1.9%). ADHD (0.7%), anxiety disorders (0.4%), and articulation disorders (0.4%) were the most common diagnoses when examining the third comorbidity. Comorbidities diagnoses are listed in Table 4.

Approximately 35% of patients were prescribed at least one psychotropic drug. Accordingly, the most commonly used drugs were stimulants (methylphenidate) (10.9%), risperidone (10.7%), and sertraline (7.6%). Additionally, 5.9% of cases were prescribed more than one drug. The psychotropic drugs that were prescribed are listed in Table 5.

Table 1. Psychiatric diagnoses across three age groups (0-6, 7-12, 13-18 Years)

Diagnosis	0-6 years n (%)	7-12 years n (%)	13-18 years n (%)	X²	p*	Post-hoc Comparisons
ADHD	35 (15.4%)	146 (64.3%)	46 (20.3%)	75.568	<0.001	7-12 > 0-6 & 13-18
Anxiety Disorders	6 (3.4%)	70 (39.1%)	103 (57.5%)	105.231	<0.001	13-18 (A) > 7-12 (B) > 0-6
ASD	26 (33.8%)	35 (45.5%)	16 (20.8%)	3.486	0.175	NS (p > 0.05)
MDD	0 (0.0%)	4 (11.4%)	31 (88.6%)	59.163	<0.001	13-18 (A) > 7-12 (B), 0-6 excluded
Mild ID	14 (20.6%)	37 (54.4%)	17 (25%)	7.241	0.027	7-12 (A) > 13-18 (B)
Moderate ID	3 (13.0%)	7 (30.4%)	13 (56.5%)	8.259	0.016	13-18 (A) > 0-6 (B)
Severe/Profound ID	4 (16.7%)	10 (41.7%)	10 (41.7%)	2.674	0.263	NS (p > 0.05)
GDD	30 (96.8%)	1 (3.2%)	0 (0.0%)	65.843	<0.001	0-6 (A) > 7-12 (B)
Stuttering	6 (30.0%)	8 (40.0%)	6 (30.0%)	0.05	0.997	NS (p > 0.05)
Articulation Disorders	14 (31.8%)	26 (59.1%)	4 (9.1%)	11.347	0.003	7-12 (A) > 13-18 (B)
DLD	49 (94.2%)	2 (3.8%)	1 (1.9%)	104.129	<0.001	0-6 (A) > 7-12 (B), 0-6 (A) > 13-18 (B)
SLD	0 (0.0%)	79 (84.9%)	14 (15.1%)	92.762	<0.001	7-12 (A) > 13-18 (B), 0-6 excluded

*: Chi-square test.
ADHD: Attention-deficit/hyperactivity disorder, ASD: Autism spectrum disorder, DLD: Developmental language disorder, GDD: Global developmental delay, ID: Intellectual disability, MDD: Major depressive disorder, SLD: Specific learning disability.
Table 1 shows the distribution of psychiatric diagnoses among the 0-6, 7-12, and 13-18 age groups and the significant differences between the groups. Chi-square test results were used to evaluate statistical differences between diagnoses. Post-hoc analysis results were reported for diagnoses with significant differences. Bonferroni correction was applied. MDD and SLD variables, for which the number of observations in the 0-6 age group was insufficient, were not included in the comparisons. "NS" indicates that there was no statistically significant difference between the groups

Table 2. Revised distribution of selected psychiatric diagnoses by age groups (0-12 and 13-18 Years)

Diagnosis	0-12 years n (%)	13-18 years n (%)	X²	p*
ODD	4 (57.1%)	3 (42.9%)	0.541	0.436
Conduct Disorder	2 (14.3%)	12 (85.7%)	20.805	<0.001
Bipolar Disorders	0 (0.0%)	1 (100%)	2.320	0.301
DMDD	1 (12.5%)	7 (87.5%)	12.595	0.001
Enuresis	9 (75.0%)	3 (25.0%)	0.152	1.000
Encoprezis	1 (100.0%)	0 (0.0%)	0.432	1.000
Unspecified ID	5 (71.4%)	2 (28.6%)	0.008	1.000
Tic Disorders	3 (75.0%)	1 (25.0%)	0.050	1.000
Social Communication Disorder	0 (0.0%)	1 (100.0%)	2.320	0.301
OCD	3 (21.4%)	11 (78.6%)	15.801	<0.001
Trichotillomania	1 (33.3%)	2 (66.7%)	1.907	0.217
Other BFRBs	10 (83.3%)	2 (16.7%)	1.046	0.527
BDD	0 (0.0%)	2 (100.0%)	4.645	0.091
PTSD	5 (50.0%)	5 (50.0%)	1.891	0.179
Acute Stress Disorder	8 (88.9%)	1 (11.1%)	1.560	0.292
Adjustment Disorder	1 (100.0%)	0 (0.0%)	0.432	1.000
Eating Disorders	0 (0.0%)	4 (100.0%)	9.307	0.008
Conversion Disorder	0 (0.0%)	2 (100.0%)	4.645	0.091
NSSI	1 (10.0%)	9 (90.0%)	17.177	<0.001
Substance Use Disorders	0 (0.0%)	2 (100.0%)	4.645	0.091
Sleep Disorders	2 (22.2%)	7 (77.8%)	9.782	0.004
Gender Dysphoria	1 (100.0%)	0 (0.0%)	0.432	1.000
Somatic Cough Syndrome	1 (100.0%)	0 (0.0%)	0.432	1.000
Internet Gaming Disorder	0 (0.0%)	1 (100.0%)	2.312	0.302

*: Fisher's-Exact
BDD: Body dysmorphic disorder, BFRBs: Body-focused repetitive behaviors, DMDD: Disruptive mood dysregulation disorder, ID: Intellectual disability, NSSI: Non-suicidal self-injury, OCD: Obsessive-compulsive disorders, ODD: Oppositional defiant disorder, PTSD: Post-traumatic stress disorder.

Table 3. Comparison of diagnoses by gender

Diagnosis	Girls n (%)	Boys n (%)	X²	p
ADHD	47 (20.7%)	180 (79.3%)	43.653	*<0.001**
ODD	5 (71.4%)	2 (28.6%)	2.938	0.122†
Conduct Disorder	3 (21.4%)	11 (78.6%)	2.001	0.157*
Anxiety Disorders	107 (59.8%9	72 (40.2%)	35.572	*<0.001**
ASD	12 (15.6%)	65 (84.4%)	20.297	*<0.001**
Bipolar Disorders	0 (0.0%)	1 (100.0%)	0.662	1.000†
MDD	23 (65.7%)	12 (34.3%)	10.119	*0.001**
DMDD	1 (12.5%)	7 (87.5%)	2.510	0.156†
Enuresis	3 (25.0%)	9 (75.0%)	1.112	0.382†
Encoprezis	0 (0.0%)	1 (100.0%)	0.662	1.000†
Mild ID	34 (50.0%)	34 (50.0%)	3.137	0.077*
Moderate ID	10 (43.5%9	13 (56.5%)	0.131	0.717*
Severe/Profound ID	5 (20.8%)	19 (79.2%)	3.690	0.055*
Unspecified ID	4 (57.1%)	3 (42.9%)	0.882	0.446†
GDD	11 (35.5%)	20 (64.5%)	0.250	0.617*
Tic Disorders	0 (0.0%)	4 (100.0%)	2.656	0.156†
Stuttering	4 (20.0%)	16 (80.0%)	3.339	0.068*
Articulation Disorders	15 (34.1%)	29 (65.9%)	0.627	0.428*
DLD	12 (23.1%)	40 (76.9%)	6.384	*0.012**
Social Communication Disorder	1 (100.0%)	0 (0.0%)	1.513	0.398†
OCD	12 (71.4%)	2 (28.6%)	12.466	*<0.001**
Trichotillomania	3 (100.0%)	0 (0.0%)	4.547	0.063†
Other BFRBs	5 (41.7%)	7 (58.3%)	0.017	1.000†
BDD	2 (100.0%)	0 (0.0%)	3.028	0.158†
SLD	34 (36.6%)	59 (63.4%)	0.450	0.502*
PTSD	7 (70.0%)	3 (30.0%)	3.837	0.099†
Acute Stress Disorder	1 (11.1%)	8 (88.9%)	3.121	0.095†
Adjustment Disorder	1 (100.0%)	0 (0.0%)	1.153	0.398†
Eating Disorders	3 (75.0%)	1 (25.0%)	2.074	0.307†
Conversion Disorder	2 (100.0%)	0 (0.0%)	3.028	0.158†
NSSI	5 (50.0%)	5 (50.0%)	0.437	0.531*
Substance Use Disorders	1 (50.0%)	1 (50.0%)	0.087	1.000†
Sleep Disorders	6 (66.7%)	3 (33.3%)	2.730	0.168†
Gender Dysphoria	0 (0.0%)	1 (100.0%)	0.662	1.000†
Somatic Cough Syndrome	0 (0.0%)	1 (100.0%)	0.662	1.000†
Internet Gaming Disorder	0 (0.0%)	1 (100.0%)	0.687	1.000†

*: Chi-square test, †: Fischer-Exact's test

ADHD: Attention-deficit/hyperactivity disorder, ASD: Autism spectrum disorder, BDD: Body dysmorphic disorder, BFRBs: Body-focused repetitive behaviors, DLD: Developmental language disorder, GDD: Global developmental delay, DMDD: Disruptive mood dysregulation disorder, ID: Intellectual disability, MDD: Major depressive disorder, NSSI: Non-suicidal self-injury, OCD: Obsessive-compulsive disorders, ODD: Oppositional defiant disorder, PTSD: Posttraumatic stress disorder, SLD: Specific learning disability.

Table 4. Frequencies of comorbid diagnoses

Second comorbid diagnosis	n (%)	Third comorbid diagnosis	n (%)
ADHD	85 (7.7%)	ADHD	8 (0.7%)
ODD	1 (0.1%)	Conduct Disorder	1 (0.1%)
Conduct Disorder	1 (0.1%)	Anxiety Disorders	4 (0.4%)
Anxiety Disorders	49 (4.5%)	MDD	1 (0.1%)
MDD	6 (0.5%)	Articulation Disorders	4 (0.4%)
Enuresis	6 (0.5%)	Stuttering	1 (0.1%)
Mild ID	4 (0.4%)	SLD	2 (0.2%)
Moderate ID	2 (0.2%)	Sleep Disorders	2 (0.2%)
Unspecified ID	1 (0.1%)	NSSI	2 (0.2%)
GDD	1 (0.1%)		
Stuttering	1 (0.1%)		
Articulation Disorders	20 (1.8%)		
BFRBs	2 (0.2%)		
SLD	21 (1.9%)		
Sleep Disorders	6 (0.5%)		
NSSI	8 (0.7%)		

ADHD: Attention-deficit/hyperactivity disorder, BFRBs: Body-focused repetitive behaviors, GDD: Global developmental delay, ID: Intellectual disability, MDD: Major depressive disorder, OCD: Obsessive-compulsive disorders, ODD: Oppositional defiant disorder, NSSI: Non-suicidal self-injury, SLD: Specific learning disability

Table 5. Frequencies of psychotropic drugs

Psychotropic drug	n (%)
No	710 (64.8%)
Yes	385 (35.2 %)
Stimulants (Methylphenidate)	120 (10.9%)
Non-stimulants (Atomoxetine)	28 (2.6%)
Antidepressants	
Sertraline	84 (7.6%)
Fluoxetine	56 (5.1%)
Imipramin	6 (0.6%)
Escitalopram	3 (0.3%)
Venlafaxine	1 (0.1%)
Antipsychotics	
Risperidone	117 (10.7%)
Aripiprazole	17 (1.6%)
Quetiapine	13 (1.2%)
Olanzapine	4 (0.4%)
Zuclopenthixol	3 (0.3%)
Others	7 (0.6%)
Desmopressin	2 (0.2%)
Lorazepam	1 (0.1%)
Valproate	2 (0.2%)
More than one medication	65 (5.9%)
More than two medications	5 (0.5%)
More than three medications	2 (0.2%)

DISCUSSION

The study was conducted retrospectively to reveal the demographic and clinical characteristics of psychiatric problems in patients who visited the child and adolescent psychiatry outpatient clinic within about eight months in a previously unstudied region of our country. Our study revealed that neurodevelopmental disorders such as ADHD, ASD, and DLD are more frequent in boys, while MDD, anxiety disorders, and OCD are more common in girls. Additionally, ADHD and SLD were most common in middle childhood (7-12 years), the age group with the highest referral frequency.

Our findings are in concordance with previous studies conducted in different regions of the country: the 7-12 age group is seen most frequently (13,14,16), neurodevelopmental disorders are more common in boys, whereas anxiety disorders are more common in girls (13), and the most frequent diagnosis overall is ADHD (13–16). The rate of psychotropic drug use, however, is lower in our study compared to studies conducted in other regions of Türkiye (14,29).

The most significant finding of our study was the higher prevalence of neurodevelopmental disorders such as ADHD, ASD, and DLD in boys, whereas anxiety disorders, MDD, and OCD were more commonly observed in girls. Similarly, in the study by Öz and Kısrak (2023), it was reported that ADHD, ASD, and behavioral disorders were more common in boys, whereas anxiety disorders and MDD were more common in girls (16). Likewise, the study by Araz and Altay (2023) revealed that ADHD, ASD, and ODD were more common in boys, while anxiety disorders and MDD were more common in girls (14). All of these findings are consistent with the results of our study. Taken together, these findings support the hypothesis that neurodevelopmental disorders are more commonly observed in boys (11) and emotional disorders with onset during adolescence are more prevalent in girls (12). Prenatal exposure to testosterone may contribute to slower biological and physical maturation and greater disinhibition in boys and is associated with delayed maturation of the temporal cortex (30,31). Higher fetal testosterone levels are linked to lower empathy and poorer quality of social relationships (32,33). In particular, a female protective model may explain the lower incidence of these disorders in girls (34), which may be another explanation for the higher prevalence of neurodevelopmental disorders in boys. During puberty, testosterone and estrogen affect the hypothalamic-pituitary-adrenal (HPA) axis differently, with testosterone suppressing and estrogen enhancing HPA axis activity (35). Although estrogen and progesterone can have protective effects on females' stress responses, they may also dampen cortisol's negative feedback mechanisms, potentially delaying stress recovery and increasing long-term stress effects, thus elevating the risk of emotional disorders. Consequently, the apparent advantages of rapid female development may diminish or become detrimental by puberty (36).

Another significant finding of this study was that the predominant age group affected was children aged between 7 and 12 years, with ADHD and SLD emerging as the most

common diagnoses within this age group. For example, in the study by Araz and Altay (2023), it was reported that ADHD was the most common diagnosis in both the 7-11 and 12-18 age groups, while the most common diagnosis in the 0-6 age group was general developmental delay (14). Görmez et al. (2017) reported that the most common diagnosis in the 5-12 age group was ADHD, followed by specific phobia and ODD (13). The same study reported that the most common diagnoses in the 13-18 age group were specific phobia, ADHD, and depression. Similarly, Kılınçel et al. (2020) documented that ADHD was the most common diagnosis in the 7-11 age group, and that anxiety and depressive disorders became more evident during adolescence (15). This prevalence may be attributed to the onset of ADHD symptoms, as well as learning and adaptation difficulties resulting from the transition into formal schooling and increased socialization during this period (14). Additionally, it may be related to the higher incidence of behavioral problems observed in children within this age group (37).

In our study, we found that more than half of the outpatients were boys. This finding aligns with previous research indicating that 58.7% to 64.6% of individuals seeking services at child and adolescent psychiatry outpatient clinics were male (13–16). The higher rate of males seeking treatment at child psychiatry outpatient clinics could be associated with various factors, including slower biological maturation in males and increased exposure to testosterone, which begins in the prenatal period (11), as well as the prevalence of externalizing disorders among males during early childhood (13).

Our study also made a significant contribution by investigating psychotropic drug usage, revealing a rate of approximately 35%, with methylphenidate and risperidone being the most commonly prescribed medications.

Psychotropic drug use ranges from 61% to 70% in studies of clinical samples in Türkiye, with stimulants and antipsychotics being the most common types of drugs utilized in this context (14,29). In the study by Araz Altay et al. (2019), the most commonly used monotherapy medications were long-acting psychostimulants (29.3%), antipsychotics (24%), and antidepressants (16%) (14). Similarly, the study by Usta et al. (2018) included 12,607 patients, 8,889 (70.4%) of whom received at least one prescription during the follow-up period (29). The most frequently prescribed drug groups were antipsychotics (32.7%) and stimulants (32.5%). Additionally, another study conducted in Türkiye reported that the most commonly used psychotropic medications were stimulants (37.1%), followed by antidepressants (12.7%) and antipsychotics (7.4%) (15). These findings are largely consistent with our results, particularly regarding the high prescription rates of antipsychotic and psychostimulant medications. A recent meta-analysis of pediatric psychotropic drugs reported a global random-effect pooled prevalence of 15.3% for ADHD drugs, 6.4% for antidepressants, and 5.5% for antipsychotics (38). Although our study's findings regarding commonly used drugs align with existing literature, the rate of medication use may remain low post-diagnosis due to concerns about stigma (39) among families' reluctance to seek treatment due to misinformation on the internet or misdirection from teachers (40). As such, raising awareness in the field of child psychiatry and preventing misinformation and labeling are vital for improving and protecting children's mental health.
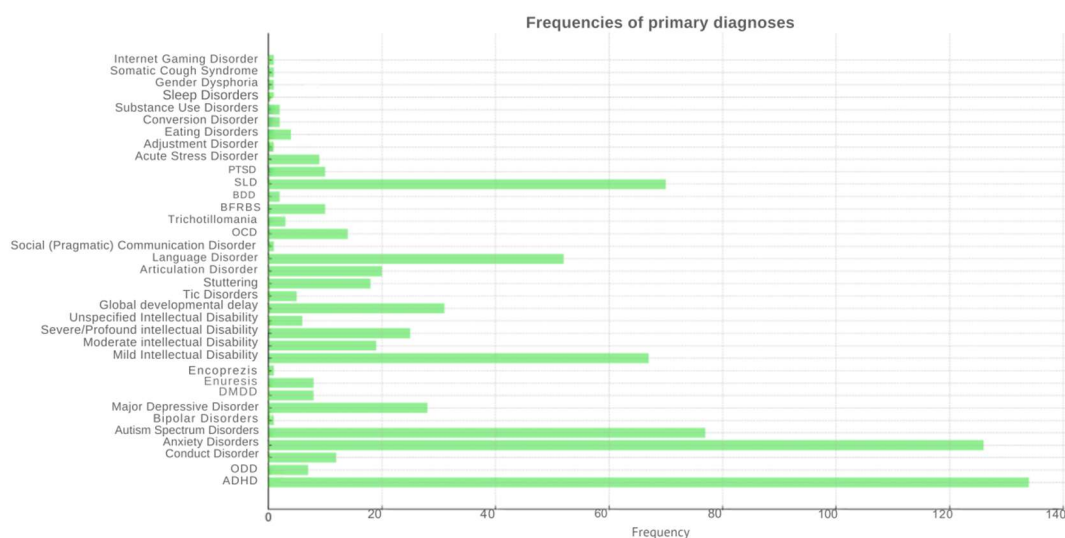
ADHD: Attention-Deficit/Hyperactivity Disorder, BDD: Body Dysmorphic Disorder, BFRBs: Body-focused repetitive behaviors, DMDD: Disruptive mood dysregulation disorder, ODD: Oppositional Defiant Disorder, OCD: Obsessive-Compulsive Disorders, PTSD: Posttraumatic Stress Disorder, SLD: Specific Learning Disability

Figure 1. Frequencies of primary diagnoses
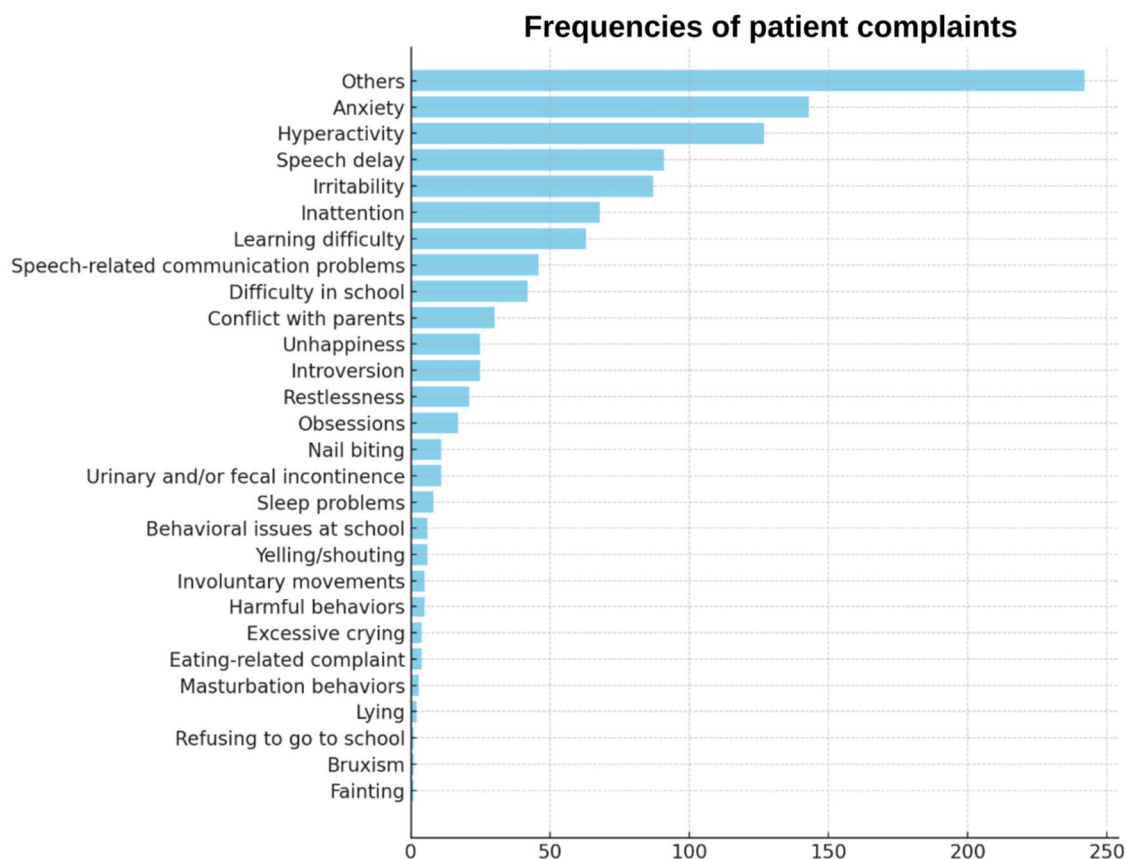
The others category includes polyclinic visits for new reports, report renewals, and uncategorized complaints.

Figure 2. Frequencies of patient complaints

CONCLUSION

The study highlights a significant role of gender in psychiatric disorders among children and adolescents. Neurodevelopmental disorders such as ADHD, ASD, and DLD were more prevalent in boys, whereas anxiety disorders, MDD, and OCD were more commonly observed in girls. Furthermore, the study reveals age-related variations in the prevalence of psychiatric disorders. Specifically, GDD and DLD were common among children aged 0-6 years, while ADHD and SLD were frequent in those aged 7-12 years. In adolescents aged 13–18 years, anxiety disorders and MDD were the most prevalent diagnoses.

Limitations and Suggestions
This study has several limitations. For example, sample size and methodological constraints, along with the use of a retrospective design, may restrict generalizability. Additionally, due to the infrequency of certain diagnoses, complete segregation of age groups was not feasible. The retrospective nature of the study also limited the identification of subgroups for diagnoses such as anxiety disorders. Another key limitation is the absence of standardized psychometric testing for the diagnosis of intellectual disability, as no qualified psychologist was available in the outpatient clinic. Moreover, the sample's representativeness is limited as the hospital is located in a district in the Eastern Anatolia region of Türkiye. These limitations underscore the importance of interpreting the study's results cautiously and advocate for more comprehensive approaches in future research.

Ethical Approval
This study was deemed ethically appropriate by the Ağrı İbrahim Çeçen University Ethics Committee (Date of decision: 28/09/2023, Research Number: 210).

Conflict of Interest
The authors declare that they have no conflicts of interest related to this study.

Financial Disclosure
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Authors' Contributions

REFERENCES

1. Costello EJ, Egger H, Angold A. 10-year research update review: the epidemiology of child and adolescent psychiatric disorders: I. methods and public health burden. J Am Acad Child Adolesc Psychiatry. 2005;44(10):972–86.

2. Polanczyk GV, Salum GA, Sugaya LS, Caye A, Rohde LA. Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. J Child Psychol Psychiatry. 2015;56(3):345–65.

3. Barican JL, Yung D, Schwartz C, Zheng Y, Georgiades K, Waddell C. Prevalence of childhood mental disorders in high-income countries: a systematic review and meta-analysis to inform policymaking. BMJ Ment Health. 2022;25(1):36–44.

4. Copeland WE, Wolke D, Shanahan L, Costello EJ. Adult functional outcomes of common childhood psychiatric problems: A prospective, longitudinal study. JAMA Psychiatry. 2015;72(9):892–9.

5. Solmi M, Durbaba S, Ashworth M, Fusar-Poli P. Proportion of young people in the general population consulting general practitioners: Potential for mental health screening and prevention. Early Intervention in Psychiatry. 2020;14(5):631–5.

6. Solmi M, Radua J, Olivola M, Croce E, Soardo L, Salazar de Pablo G, et al. Age at onset of mental disorders worldwide: large-scale meta-analysis of 192 epidemiological studies. Mol Psychiatry. 2022;27(1):281–95.

7. Human growth and development. StatPearls. Accessed June 2, 2024. https://www.ncbi.nlm.nih.gov/books/NBK567767/

8. Likhar A, Baghel P, Patil M. Early childhood development and social determinants. Cureus. 2022;14(9).

9. Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. Dialogue Clin Neurosci. 2009;11(1):7–20.

10. Costello EJ, Copeland W, Angold A. Trends in psychopathology across the adolescent years: What changes when children become adolescents, and when adolescents become adults? J Child Psychol Psychiatry. 2011;52(10):1015–25.

11. Rutter M, Caspi A, Moffitt TE. Using sex differences in psychopathology to study causal mechanisms: unifying issues and research strategies. J Child Psychol Psychiatry. 2003;44(8):1092–115.

12. Zahn-Waxler C, Shirtcliff EA, Marceau K. Disorders of childhood and adolescence: Gender and psychopathology. Annu Rev Clin Psychol. 2008;4:275–303.

13. Gormez V, Örengül AC, Baljinnyam S, Aliyeva N. Çocuk ve ergen psikiyatrisi polikliniğine başvuran hastalarda tanı dağılımı ve demografik özellikler. JMOOD. 2017;(7)1:41-6.

14. Araz Altay M, Bozatlı L, Demirci Şipka B, Görker I. Current pattern of psychiatric comorbidity and psychotropic drug prescription in child and adolescent patients. Medicina. 2019;55(5):159.

15. Kılınçel Ş. Çocuk ve ergen psikiyatrisi polikliniğine başvuran hastaların tanı dağılımı ve tedavilerinin değerlendirilmesi. Sakarya Tıp Dergisi. 2020;10(4):661–8.

16. Öz B, Kıvrak AC. Sociodemographic and clinical characteristics of children and adolescents applying to the child psychiatry outpatient clinic in Düzce. VHS. 2023;13(2):203–8.

17. Sarı BA. Symptoms and diagnoses of patients referring to a child and adolescent psychiatry outpatient clinic in Batman. J Clin Psy. 2013;16:7–17.

18. Karacetin G, Arman AR, Fis NP, Demirci E, Ozmen S, Hesapcioglu ST, et al. Prevalence of childhood affective disorders in Turkey: An epidemiological study. J Affect Disord. 2018;238:513–21.

19. Ercan ES, Polanczyk G, Ardıc UA, Yuce D, Karacetın G, Tufan AE, et al. The prevalence of childhood psychopathology in Turkey: a cross-sectional multicenter nationwide study (EPICPAT-T). Nord J Psychiatry. 2019;73(2):132-40.

20. Sağlık Bakanlığı Yönetim Hizmetleri Genel Müdürlüğü. Accessed June 9, 2024. https://yhgm.saglik.gov.tr/

21. Doğubayazıt Kaymakamlığı. Accessed June 8, 2024. http://www.dogubayazit.gov.tr/

22. American psychiatric association. diagnostic and statistical manual of mental disorders. 5th ed. American Psychiatric Association; 2013.

23. Krug DA, Arick J, Almond P. Behavior checklist for identifying severely handicapped individuals with high levels of autistic behavior. J Child Psychol Psychiatry. 1980;21(3):221–9.

24. Yilmaz-Irmak T, Tekinsav-Sutcu WS, Aydin A, Sorias O. An investigation of validity and reliability of autism behavior checklist (ABC). Turk J Child Adolesc Ment Health. 2007;14(14):13–23.

25. Turgay A. The DSM-IV Based child and adolescent behavior rating scale. Ontario, Integrative therapy institute, Canada. 1995.

26. Chorpita BF, Yim L, Moffitt C, Umemoto LA, Francis SE. Assessment of symptoms of DSM-IV anxiety and depression in children: A revised child anxiety and depression scale. Behav Res Ther. 2000;38(8):835–55.

27. Gormez V, Kılınçaslan A, Orengul AC, Ebesutani C, Kaya I, Ceri V, et al. Psychometric properties of the Turkish version of the revised child anxiety and depression scale – child version in a clinical sample. Psychiatry Clin Psychopharmacol. 2017;27(1):84–92.

28. Gormez V, Kilincaslan A, Ebesutani C, Orengul AC, Kaya I, Ceri V, et al. Psychometric properties of the parent

version of the revised child anxiety and depression scale in a clinical sample of turkish children and adolescents. Child Psychiatry Hum Dev. 2017;48(6):922–33.

29.　　Usta MB, Gumus YY, Aral A, Say GN, Karabekiroglu K. Psychotropic medication use in children and adolescents: review of outpatient treatments. Dusunen Adam Journal of Psychiatry and Neurological Sciences. 2018;31(1):72.

30.　　McClure EB. A meta-analytic review of sex differences in facial expression processing and their development in infants, children, and adolescents. Psychol Bull. 2000;126(3):424–53.

31.　　Geary DC. Sexual selection and human life history. Adv Child Dev Behav. 2002;30:41–101.

32.　　Baron-Cohen S. The extreme male brain theory of autism. Trends Cogn Sci. 2002;6(6):248–54.

33.　　Knickmeyer R, Baron-Cohen S, Raggatt P, Taylor K, Hackett G. Fetal testosterone and empathy. Horm Behav. 2006;49(3):282–92.

34.　　Jacquemont S, Coe BP, Hersch M, Duyzend MH, Krumm N, Bergmann S, et al. A higher mutational burden in females supports a "female protective model" in neurodevelopmental disorders. Am J Hum Genet. 2014;94(3):415–25.

35.　　Young EA. Sex differences and the HPA axis: implications for psychiatric disease. J Gend Specif Med. 1998;1(1):21–7.

36.　　Gender Differences at Puberty. Cambridge University Press. Accessed June 3, 2024. https://books.google.com/books?hl=tr&lr=&id=JnO_VCuH7scC&oi=fnd&pg=PR11

37.　　Mental Health Surveillance Among Children — United States, 2013–2019. MMWR Suppl. Accessed June 1, 2024. https://www.cdc.gov/mmwr/volumes/71/su/su7102a1.htm

38.　　Piovani D, Clavenna A, Bonati M. Prescription prevalence of psychotropic drugs in children and adolescents: an analysis of international data. Eur J Clin Pharmacol. 2019;75(10):1333–46.

39.　　Identifying Mental Health Difficulties in Children & Young People: The Role of Schools. ACAMH. Accessed June 8, 2024. https://www.acamh.org/blog/identifying-mental-health-difficulties-in-children-youngpeople-the-role-of-schools/

40.　　Loades ME, Mastroyannopoulou K. Teachers' recognition of children's mental health problems. Child Adolesc Ment Health. 2010;15(3):150–6.