Frequency and correlates of psychiatric disorders in early childhood: a study of population and clinical samples in Turkey

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Behavioral and emotional problems experienced in early childhood may have a major impact on the development and functioning of a child, leading to a number of psychiatric problems at a later age. The purpose of this study was to determine the incidence of psychiatric disorders in 3-5-year-old children presenting to the Outpatients Department and in the general population, and the relationship between psychiatric disorders and the sociodemographic characteristics of the children. This was a cross-sectional study carried out in Kocaeli, Turkey. Data were collected from two different groups, one representing the general population and the other based on children presenting to the Pediatric Psychiatry Outpatients Department at Kocaeli University Faculty of Medicine. Of the 309 children in the study, 187 (60.5%) were boys and 122 (39.5%) were girls. Children aged 3-5 years (n=81) were assessed by clinical examination. The mean age of the children was 3.94±0.81 years. No significant difference was observed between the groups in terms of parents' age groups, presence of consanguineous marriage, family structure, and siblings. The mothers were assessed in terms of regular visits to their physicians, major medical conditions, medication use, alcohol or tobacco consumption, and stress factors during their pregnancies. No significant difference was found between the study samples. The presence of a medical problem after birth was significantly more common in the clinical sample. Of the children in the clinical sample, 79% had at least one psychiatric problem, while the ratio for the general population sample was 41.7%.

Key words: early childhood, psychiatric disorders, epidemiology.

The early childhood period, also called the preschool or play age period, defines children between the ages of 3 and 6 years and is a period of development in the physical, cognitive, linguistic, motor, and psychosocial fields. Behavioral and emotional problems experienced in early childhood may have a major impact on the development and functioning of a child, compromising his/her academic success and relationships with family and friends and leading to a number of psychiatric problems at a later age[1]. Low socioeconomic status, family adversity, subaverage intelligence quotient (IQ), language deficits, and neurodevelopmental delay have been explored as possible underlying factors for psychiatric problems[2]. Since children develop rapidly during the early childhood period, it is rather difficult to differentiate certain types of normal development-related behavior from psychiatric disorders in this age group[1]. Diagnosing psychiatric disorders is therefore an important preventive health measure that can also enable treatment. It is also beneficial to know the status of psychiatric disorders in the early childhood period so that healthcare services can be planned and social

policies directed at children can be developed in a community. Determination of the population subgroups in which psychiatric problems are concentrated is also the first step in shaping the societal measures to take regarding these risk groups.

The Diagnostic and Statistical Manual of Mental Disorders-IV-TR (DSM-IV-TR) is widely used to classify psychological disorders. Psychopathologies observed in childhood are defined as "disorders diagnosed in infancy, childhood or adolescence" according to this classification. However, other disorders not listed under that category, such as major depressive disorder (MDD), generalized anxiety disorder (GAD) and schizophrenia, can also be observed in children[3]. Although the DSM has only been used in a limited number of studies conducted with preschool children, its validity in diagnosing psychiatric disorders has been demonstrated[4-6].

There are only a few studies on the incidence of childhood psychiatric disorders, although they play a key role in the health of the community[7-10]. Population-based studies with this particular age group are limited. Various results have been reported from these studies. While the Ontario Child Health Study reported certain behavioral problems as common among children <5 years of age[11], another study maintained that only 14 per 100 children at the age of 3 years had been diagnosed with a psychiatric disorder according to the DSM-III diagnostic classification[4].

A study on another population sample of 3,860 preschool children, of whom 510 were evaluated clinically, made a diagnosis of an Axis I DSM-III-R disorder in 21.4% of the children[8].

A longitudinal population-based study screened 1,317 children at 5 years of age, and clinically evaluated 403 of the children with the Child and Adolescent Behavior Evaluation Scale as completed by their mothers[6]. The findings revealed psychopathologies, which were consistent with the Child Behavior Checklist (CBCL) scores. The Mental Health Profile of Turkey (MHPT), published in 2001, evaluated children and adolescents at the ages of 2-3 years and 4-18 years by using CBCL forms completed by their parents and teachers, and established the incidence of mental problems. This rather extensive study reported the incidence of overall problems in the last month in 2-3-year-old children to be 16.5%, while the incidence of clinical problems was reported to be 10.9%. Similarly, the incidences of overall and clinical problems for 4-18-year-old children in the last 6 months were 16.7% and 11.3%, respectively[7].

We presumed that a study in this age group would be beneficial in determining the relevant policies for the mental health of these children, taking into account the limited number of studies from our country and in the literature on the incidence of psychiatric disorders in the early childhood period and the associated factors. Early intervention in psychiatric problems will have an important effect on preserving mental health in children. The purpose of the present study was, therefore, to determine the frequency of psychiatric disorders in 3-5-year-old children. We aimed to investigate the difference between the children presenting at the outpatients department with psychiatric problems and the community sample regarding sociodemographic features, personal and family history, and natal and postnatal characteristics. We wanted to expose groups at risk by determining these differences and to guide intervention programs in cases with a high possibility of developing a psychiatric disorder. There are very few population-based studies on the subject, and this study was therefore conducted on both a sample representing the community and among children presenting to the outpatients department. We tried to determine the differences between those presenting to the outpatients department and the current psychiatric disorder pattern in the community.

Material and Methods

The study was conducted on two different samples in İzmit and Kocaeli between February and April 2006. The study on the sample that represented the population had a cross-sectional design, while the second step was a descriptive study conducted at the Pediatric Psychiatry Clinic of Kocaeli University.

The study was conducted according to the Declaration of Helsinki and Good Clinical Practices. Written permission was obtained from the local ethical committee. Written

informed consent was obtained from the patients.

Sampling

Population sampling

The population sample was selected from 3-5-year-old children (range: 3 years 0 months - 5 years 11 months) residing in the region of the İzmit Health Authority. There were about 26,000 children in that age group according to the population data from primary healthcare units for 2004. The primary healthcare units were first divided into two categories to represent the urban and rural populations, and weighted according to the general population size. The sample size was determined by using the sample size formula to test a single proportion[12]. The probability value (p) was taken as the incidence of psychiatric morbidity in 3-5-year-old children in the formula. The MHPT, published following a study carried out in 1995 and 1996, reported the incidence of problematic behavior to be 16.5% for 2-3-year-old children and 16.7% for 4-18-year-old children[7]. A p-value of 15% was accepted as significant in the present study. The calculation revealed the smallest sample size for the general population sample to be 196, and we therefore enrolled 200 children in the study. Since 40.6% of the population lived in the area served by the 25 rural primary healthcare units, 81 of the 200 children to be enrolled in the present study were selected from these centers, while the remaining 119 children were selected from the urban primary healthcare units.

In the second stage, the urban and rural primary healthcare units were listed alphabetically and numbered in the corresponding groups, and four rural and six urban primary healthcare units were randomly selected. The samples were selected by systematic sampling from the "child follow-up forms" of the 3-5-year-old children (range: 3 years 0 months - 5 years 11 months) at the selected primary healthcare unit. The selected children were invited to the primary healthcare units by means of telephone calls to their primary health workers. If the person was unreachable, did not accept the invitation, or was illiterate and thus unable to fill out the form, the next child on the list was invited. A total of 210 children were evaluated, but 6 children were excluded from the study due to inadequate data; thus, a total of 204 children were enrolled in the study.

Clinical sample

A total of 111 children between the ages of 3 and 5 years (range: 3 years 0 months - 5 years 11 months) seen consecutively at the Kocaeli University Faculty of Medicine, Pediatric Psychiatry Outpatients Department between March and September 2006 with various psychiatric complaints were evaluated, and 105 children were enrolled in the study; 6 were excluded due to unreliable data.

Data Collection Tools

Sociodemographic data form

This form, which queried the demographic information of the child and parent, the family structure, consanguinity, siblings, natal and postnatal characteristics and developmental features of the child, personal and family history, and type of housing, was prepared by the investigators. The necessary information was obtained by having the first investigator ask the questions in the form.

Early Childhood Inventory-4: Parent Form (ECI-4: PF)

The ECI-4: PF is a scale developed by Sprafkin and Gadow[5] to evaluate behavioral, emotional and cognitive problems according to diagnostic measures in children aged 3-5 years. The ECI-4 is frequently preferred among the few scales that evaluate the incidence of psychiatric disorders in the early childhood period[13]. Basgul et al[14]. performed the Turkish validity and reliability studies for the scale.

Procedure:

The mothers of the children were informed on the aim of the study and their verbal consent obtained. An interview based on the DSM-IV (1994) diagnostic measures and lasting for an hour was held with the children and the family, and the presence or absence of Axis I and II diagnoses was queried in detail[3]. The child was observed in a free play environment during the interview. Information on sociodemographic features, natal and postnatal characteristics, developmental features of the children, and

personal and family history of the children was obtained during the same interview using the investigator-prepared form. Other than the completed form, we did not administer any tests to the children to evaluate developmental features.

We feel that it is appropriate to wait for the age-related speech problems that may be seen in children aged 16 months - 4 years to pass before diagnosing speech disorder in a case, and we therefore accepted 4 years as the minimum age to evaluate speech problems[15,16].

Data Analysis

Study data were analyzed using SPSS (Statistical Package for Social Sciences) 10.0 for Windows. The Pearson chi-square test and Fisher chi-square test were used to compare the characteristics of the general population and clinical samples. Correlations were explored with the Pearson correlation test. Results were evaluated using 95% confidence intervals, and the level of significance was $p \leq 0.05$.

Results

Sociodemographic Data

Of the 309 children in the study, 187 (60.5%) were boys and 122 (39.5%) were girls. The age group distribution was as follows: 36.6%, 32.7% and 30.7% were 3, 4 and 5 years of age, respectively. The mean age was 3.99±0.78 years for the boys and 3.87±0.87 years for the girls, while the mean age as a group was 3.94±0.81 years. Although no difference was observed in the general population sample in terms of gender, the number of boys in the clinical sample among the children who presented at the Outpatients Department was significantly higher than that of girls.

Children not attending any preschool programs comprised 78.6% of the present study population. There was no significant difference between the clinical and general population samples in terms of preschool attendance.

Although mothers described 4.9% of the children as having mental retardation, clinical evaluation revealed that 19% of the children had mental retardation. None of the children in the general population sample had special education, but 10.5% of the children in the clinical sample received special education (Table I).

No statistically significant difference was observed between the groups in terms of parents' age groups ($p>0.05$). There was no statistically significant difference between the groups in terms of the educational background and employment status of the parents ($p>0.05$) (Table II).

Table I. Demographic Characteristics of 3-5-Year-Old Children

	General population n (%)	Clinical population n (%)	p
Gender			
Girl	89 (56.4)	33 (31.4)	0.03
Boy	115 (43.6)	72 (68.6)	
Age (year)			
3	79 (38.7)	34 (32.4)	
4	69 (33.8)	32 (30.5)	0.2
5	56 (27.5)	39 (37.1)	
Preschool education			
Ongoing	36 (17.6)	30 (28.6)	
Dropouts	9 (4.4)	1 (1.0)	0.00006
Never attended	159 (77.9)	74 (70.5)	
Special education	-	11 (10.5)	
Handicapped			
Physical	2 (1.0)	-	0.04*
Mental	2 (1.0)	13 (12.4)	

* Fisher chi-square test

Table II. Demographic Characteristics of Parents

Characteristics	General population n (%)	Clinical population n (%)	P
Mother			
Age (n=303)			
>41 years	8 (3.9)	4 (4.0)	
31-40 years	87 (42.6)	40 (40.4)	0.9
21-30 years	109 (53.4)	55 (55.6)	
Education (n=308)			
Illiterate	5 (2.5)	3 (2.9)	
Literate	4 (2.0)	4 (3.8)	
Primary school graduate	120 (58.8)	51 (49.0)	0.5
Secondary school graduate	14 (6.9)	11 (10.6)	
At least high school graduate	61 (29.9)	35 (33.7)	
Employment status (n=308)			
Employed	18 (8.8)	13 (12.4)	0.4
Unemployed	186 (91.2)	91 (86.7)	
Father			
Age (n=303)			
>41 years	29 (14.2)	13 (12.4)	
31-40 years	130 (63.7)	63 (60.0)	0.9
21-30 years	45 (22.1)	23 (21.9)	
Education (n=308)			
Illiterate	-	-	
Literate	-	1 (1.0)	
Primary school graduate	88 (43.1)	38 (36.5)	0.2
Secondary school graduate	35 (17.2)	14 (13.5)	
At least high school graduate	81 (39.7)	51 (49)	
Employment status (n=307)			
Employed	197 (96.6)	101 (1.9)	0.7*
Unemployed	7 (3.4)	2 (96.2)	

*Fisher chi-square test

No significant difference was found between the general population sample and the clinical sample in terms of consanguineous relationships between the mothers and fathers, family structures and siblings ($p>0.05$). A nuclear family structure was present in 78.6% of the families in the study. Consanguinity existed between the parents of 8.8% of the children. Children with at least one sibling made up 72.7% of the study population. We found no statistically significant relationship between the number of siblings and psychiatric disorder in either sample group. An extended family member provided help with the care of 37.5% of the children. The number of divorced or separated parents in the clinical sample was significantly higher than in the general population sample ($p<0.05$). Divorce or separation of the parents was observed in 1% of the general population sample, while 6.7% of the children in the clinical sample had divorced or separated parents.

The subjects were also compared in terms of the type of housing, and no statistically significant difference was observed between the parents owning or not owning their home and those living in a flat, detached house or prefabricated house ($p>0.05$). There was no statistically significant difference between the general population sample and the clinical sample with respect to the children having their own rooms ($p>0.05$). While 57.1% of the children did not have a room of their own or shared a room with siblings, 11.4% did not sleep in their own room even though they had one.

Natal and Postnatal Data

The mothers were assessed in terms of regular visits to their physicians, major medical conditions, medication use, alcohol or tobacco consumption, and stress factors during their pregnancies. No significant difference was found between the study samples. During their pregnancy, 82.5% of the mothers had undergone regular check-ups, while 1% consumed alcohol and 14.6% smoked. At least one stress factor was reported by 50% of the mothers. Financial difficulties and problems with the husband and/or in-laws were the most common stress factors reported.

The types of delivery and birth weights of the children were not noted to be significantly different in the groups. It was established that 64.5% of the children had been born via a normal spontaneous vaginal delivery. The children in the clinical sample were reported to have a higher rate of premature birth and a lower rate of being nursed when compared with the children in the general population sample, and the difference was statistically significant ($p<0.05$). Nursing within the first hour after birth was reported by 62.7% of the mothers of the children in the general population sample, and 46.6% of the mothers in the clinical sample. Medical complications following birth were reported for 25% of the children in the clinical sample and for 13.6% of the children in the general population sample. The difference was statistically significant ($p<0.05$).

Developmental Features of the Children

It was observed that the children in the clinical sample had started walking later than their peers in the general population sample. The children in the clinical sample also had impaired fine motor skills, more trouble in speaking and understanding others, and greater socializing problems. The parents of the children in the clinical sample described more problems concerning toilet training than was described for their counterparts in the general population sample. The differences between the groups were statistically significant ($p<0.05$; Table III).

Personal and Family History of the Children

Evaluation of the personal histories of the children in the clinical population demonstrated that although a history of admission to psychiatric clinics and hospitalization for any reason was more common than in the sample population, the difference was not statistically significant ($p>0.05$).

No significant difference was found between the groups when the children were compared in terms of family history and physical illness. However, when the samples were compared with respect to psychiatric conditions, the clinical sample was noted to suffer from a higher incidence of depressive mood, psychosis and mental retardation. The difference between the samples was found to be statistically significant ($p<0.05$).

Psychiatric Disorders Diagnosed

The most common diagnoses were anxiety disorders (22.5%) in the general population sample and disruptive behavior disorders (DBD) (41%) in the clinical sample ($p<0.05$). The most common diagnoses were anxiety disorders (22.5%) in the population sample and DBDs (41%) in the clinical sample. The clinical diagnoses established according to DSM-IV criteria are presented in Table IV. Clinical evaluation did not reveal any children with specific phobias, panic disorders, rumination disorders, malnutrition, Asperger disorders, or selective mutism (SM) in either group. None of the children in the general population sample was diagnosed with Tourette's syndrome (TS), autism, or pervasive developmental disorder, not otherwise specified (PDD-NOS). While 5.5% of the children had a history of pica, 10.7% were shown to have ongoing pica. Soil was observed to be the most common substance eaten by the children with pica. Relationship problems in families existed in 30.5% of the clinical sample and 15.2% of the general population sample, and the difference between the samples was significant ($p<0.05$). Of the 309 children in the study, 23.6% were shown to have sibling jealousy and 13.3% had sleeping problems. The most common sleeping problems were reported to be frequent awakening at night, difficulty in falling asleep, and not sleeping in the daytime. The samples were not observed to be statistically different in terms of sibling jealousy and sleeping problems ($p>0.05$).

Table III. Developmental Characteristics of the Children

Developmental characteristics	General population n (%)	Clinical population n (%)
Walking (n=303)		
Before 12 months	71 (34.8)	29 (27.6)
Between 12 and 16 months	116 (56.9)	51 (48.6)
After 16 months	17 (8.3)	19 (18.1)
First word (n=302)		
Before 9 months	107 (52.5)	25 (23.8)
Between 11 and 23 months	89 (43.6)	46 (43.8)
After 16 months	8 (3.9)	27 (25.7)
First sentence (n=274)		
Before 11 months	6 (3.4)	1 (1.0)
Between 11 and 23 months	133 (76.0)	45 (45.5)
After 23 months	34 (76.0)	45 (45.5)
Not speaking	2 (11.1)	14 (14.4)
Expressing himself/herself through speaking (n=309)		
Yes	203 (99.5)	84 (80.0)
No	1 (0.5)	21 (20.0)
Understanding what is being said (n=309)		
Yes	204 (100)	99 (-)
No	-	6 (5.7)
Functional games with toys (n=309)		
Yes	204 (100)	99 (91.4)
No	-	6 (8.6)
Playing with peers (n=308)		
Yes	202 (99.5)	85 (81.0)
No	1 (0.5)	20 (19.0)
Able to get dressed by himself/herself (n=309)		
Yes	202 (99.0)	82 (78.1)
No	2 (1.0)	23 (21.9)
Able to feed himself/herself (n=309)		
Yes	203 (99.5)	95 (90.5)
No	1 (0.5)	10 (9.5)
Able to hold a pencil (n=309)		
Yes	204 (100)	99 (91.4)
No	-	6 (8.6)
Transitional object (n=308)		
Yes	37 (18.1)	20 (19.2)
No	167 (81.9)	84 (80.8)
Toilet training (n=309)		
Still not complete	65 (31.9)	55 (52.4)
Trained	139 (68.1)	50 (47.6)

Table V presents the incidence of morbidity with respect to gender in the clinical and general population samples. The incidence of at least one disorder in the general population sample was 48.3% for girls and 64.3% for boys. Similarly, the figures for the clinical sample were 87.9% and 90.3% for girls and boys, respectively. The number of boys with at least one disorder was significantly higher than of girls in the general population sample

Table IV. Diagnoses According to DSM-IV Diagnostic Criteria for the 3-5-Year-Old Children in the Study

Diagnosis	General population n (%)	Clinical population n (%)
Speech Disorders*		
Phonologic Disorder	24 (19.2)	26 (36.6)
Stammering	1 (0.8)	5 (7.0)
Phonologic Disorder and stammering	1 (0.8)	6 (8.5)
Disruptive Behavior Disorders		
ADHD, AD	7 (3.4)	24 (22.9)
ADHD, H	22 (10.8)	34 (32.4)
ADHD, M	7 (10.8)	34 (32.4)
ODD	16 (7.8)	26 (24.8)
BD	2.0 (1.0)	5 (4.8)
Anxiety Disorders		
SAD	24 (11.8)	11 (10.5)
Specific Phobia	-	-
Social Phobia	4 (2.0)	5 (4.8)
PD	-	-
ASD	2 (1.0)	1 (1.0)
PTSD	4 (2.0)	9 (8.6)
GAD	4 (2.0)	9 (8.6)
OCD	14 (6.9)	3 (2.9)
Eating Disorders		
Pica	19 (9.3)	14 (13.3)
RD	-	-
Malnutrition	-	-
Tic Disorders		
TS	-	2 (1.9)
CTD	1 (0.5)	3 (2.9)
TTD	7 (3.4)	8 (7.6)
TD-NOS	9 (4.4)	5 (4.8)
Elimination Disorders		
Encopresis	3 (1.5)	9 (8.6)
Enuresis	16 (7.8)	15 (14.3)
Depressive Disorders		
MDD	4 (2.0)	5 (4.8)
Dysthymia	4 (2.0)	8 (7.6)
Pervasive Developmental Disorders		
Autism	-	10 (9.5)
Asperger	-	-
PDD-NOS	-	5 (4.8)
Others		
RAD	4 (2.0)	5 (4.8)
SM	-	-
SBD	8 (3.9)	11 (10.5)
GID	1 (0.5)	1 (1.0)
MR	1 (0.5)	20 (19.0)

* Only 4-5-year-olds

ADHD-AD: Attention deficit hyperactivity disorder-attention deficit subtype. ADHD-H: Attention deficit hyperactivity disorder-hyperactivity subtype. ADHD-M: Attention deficit hyperactivity disorder-mixed type. BD: Behavior disorder. ODD: Oppositional defiant disorder. SAD: Separation anxiety disorder. PD: Panic disorder. ASD: Acute stress disorder. PTSD: Post-traumatic stress disorder. GAD: Generalized anxiety disorder. OCD: Obsessive compulsive disorder. RD: Regurgitation disorder. TS: Tourette's syndrome. CTD: Chronic tic disorder. GGTB: Transient tic disorder. TD-NOS: Tic disorder, not otherwise specified. MDD: Major depressive disorder. PDD-NOS: Pervasive developmental disorder, not otherwise specified. RAD: Reactive attachment disorder. SM: Selective mutism. SBD: Stereotyped behavior disorder. GID: Gender identity disorder. MR: Mental retardation.

Table V. Morbidity Rates with Respect to Gender in 3-5-Year-Old Children

Diagnosis	General population n (%)	P	Clinical population n (%)	P
DBD				
Female	8 (9.0)	0.930	28 (45.5)	0.670
Male	21 (18.3)		15 (38.9)	
Anxiety Disorders				
Female	17 (19.1)	0.386	7 (21.2)	0.860
Male	29 (25.2)		18 (25.0)	
TS and Chronic Tic Disorder				
Female	1 (1.1)	0.898	2 (6.1)	1.000
Male	-		3 (4.2)	
Elimination Disorders				
Female	8 (9.0)	1.000	7 (21.2)	0.773
Male	10 (8.7)		12 (16.7)	
Mood Disorders				
Female	5 (5.6)	0.463	6 (18.2)	0.253
Male	3 (2.6)		6 (8.3)	
PDD				
Female	-	-	2 (6.1)	0.183
Male	-		13 (18.1)	
RAD				
Female	3 (3.4)	0.442	4 (12.1)	0.570
Male	1 (0.9)		1 (1.4)	
GID				
Female	-	1.000	1 (1.0)	0.688
Male	1 (0.9)		-	

TS: Tourette's syndrome. DBD: Disruptive behavior disorder. PDD: Pervasive developmental disorder. RAD: Reactive attachment disorder. GID: Gender identity disorder.

($p<0.05$). On the other hand, no difference was observed between the boys and girls in the clinical sample. A comparison of the diagnoses with respect to gender did not reveal any statistically significant differences for any of the diagnosis groups. However, certain diagnoses were noted to be distributed unevenly in terms of gender. DBD was found to be more prevalent in boys in the general population sample, while it was more common in girls in the clinical sample. Similarly, TS, chronic tic disorders, elimination disorders, mood disorders, and reactive attachment disorder (RAD) were more common in girls in both of the samples. On the other hand, anxiety disorders were common in boys in both of the samples. PDD was observed only in the clinical sample and was more common in boys. The clinical diagnoses established according to DSM-IV criteria and morbidity rates are presented in Tables IV and V, respectively.

Discussion

This present study investigated the sociodemographic characteristics of 3-5-year-old children and their families and the relationship between the sociodemographic characteristics and psychiatric disorders.

Sociodemographic Data

The rate of 78.6% for not attending preschool training in both the clinical sample and the community sample indicate that a high percentage of children do not attend preschool training in our country. We believe this percentage could be an important problem when we take into account the benefit of preschool training on the fine motor and personal social skills and especially the language skills of children aged 3 to 6[17,18].

A mental retardation incidence of 2-3% is reported for the United States[3]. The mental

functions of 19% of the children were found to be behind others of the same age in this study. We did not use any test to define mental retardation, and the children were evaluated taking into account their clinical adaptation skills. A mental retardation syndrome was defined in 4.9% of the children by the families. The higher rate of diagnosed mental retardation than defined by the families can either be attributed to the fact that parents in Turkey do not pay sufficient attention to mental retardation in their children, or alternatively to the fact that parents themselves do not have enough knowledge to recognize mental retardation.

There are various reports in the literature on the association between the parent's education and the psychiatric disorders in the children. A study from Siberia in 2007 reported an increased incidence of psychiatric disorders in families with low socioeconomic status and parents with inadequate education[19]. A study from Pakistan on children aged 5 to 11 reported an increase in the psychiatric disorder rates of children as the mother's educational level decreased[20]. The age, education and employment status of the parents were similar between the community and clinical samples in our study, and we did not find any relation between these factors and psychiatric disorders. Abali et al[21]. similarly did not find a relationship between parental education and psychiatric disease.

No difference was found between the general population sample and the clinical sample in terms of consanguinity between the parents, family structures and siblings. Our results indicate that consanguineous marriages take place at a high rate in our country. Consanguineous marriage also increases the risk of mental retardation related to inherited disease[22]. The rate of consanguineous marriage and percentage of nuclear families in our study were consistent with the typical Turkish family structure[23].

The divorce rate was higher in the clinical sample, and the significant difference between the samples in this regard can be attributed to the adverse effects of divorce and separation on the mental state of children and on their subsequent admission to psychiatric clinics. Divorce is interpreted differently by children in the development period. Parent separation is reported to cause separation anxiety in preschool children[24].

It is noteworthy that there were no differences in terms of psychiatric disorders in the children living in flats, detached houses or prefabricated houses in the city of Kocaeli, which is located in an earthquake zone.

Natal and Postnatal Data

Routine visits to the physician by the mothers and the lack of a serious illness as reported during their pregnancy were seen as an important factor in the prevention of risks regarding psychiatric and physical conditions in the children of our country. However, the increased incidence of psychiatric disorders in children of mothers who reported stress during their pregnancy is important, as it emphasized the importance of avoiding stress during this period. Similarly, a 2010 study by Helm et al[25]. on a large sample demonstrated that socioeconomic stress in the prenatal period can cause emotional and social problems in children aged 0-17.

There were no significant differences between the samples in terms of the type of delivery and birth weight. However, it was established that premature birth was more common among the children in the clinical sample. Premature birth and medical complications following birth were found to be correlated with mental retardation. Premature birth is known to cause brain damage[26-28].

The children in the clinical sample had either been started on nursing later than their peers in the general population sample or were never nursed. This particular result is significant in that it can suggest that mother's milk has a protective quality against psychiatric disorders. It also indicates the significance of nursing and the mother-child relationship in the etiology of psychiatric disorders[29]. Young et al.[30] published a study emphasizing the importance of mother's milk on the mental and motor development of children in 1982. Liu et al.[31] similarly reported that nursing the child is protective against behavioral problems that can arise at the age of 4-5 years.

Developmental Features of the Children

Evaluation of the children in our study population in terms of developmental

characteristics of preschool children revealed that the children in the clinical sample started walking and speaking later than their peers in the general population sample. They also had more difficulty understanding others, played less functional games with toys, had greater problems getting along with their peers, and had inferior self-care skills. These findings indicate that developmental retardation of children may be an important factor in presentation to the Pediatric Psychiatry Outpatients Department.

Personal and Family History of the Children

Evaluation of the family histories of the children demonstrated that depressive mood, psychosis and mental retardation were more common in the families of the clinical sample. The results imply a genetic disposition to psychiatric disorders[32]. A number of studies have reported that the presence of psychopathologies in either parent leads not only to a genetic disposition in their children, but also to higher degrees of conflict between the parents, poorer parent-child relationships and elevated stress in interpersonal relationships, thus increasing the risk of developing psychiatric disorders[33-34]. The significance of an axis IV diagnosis according to DSM-IV diagnostic criteria has also been stressed considering the impact of environmental factors on the development of psychiatric disorders and the resulting impact of psychiatric problems in families on a child's environment[3].

Psychiatric Disorders Diagnosed

The clinical evaluation of the morbidity rates in the study demonstrated that 79% of the clinical sample and 41.7% of the general population sample had at least one morbidity. There are very few studies on the incidence of psychiatric disorders in the early childhood period. The literature reports varying results concerning the incidence of morbidity for this age group. A study evaluating 510 preschool children admitted to a pediatric clinic according to DSM-III-R criteria reported a 21.4% rate for an Axis I diagnosis[8]. Another study evaluated children living in a care facility in Romania through scores given by their caregivers and by using the ECI-4 executive function (EF) cutoff points. The study established that 96% of the 51 children aged 2-6 years had at least one DSM-IV diagnosis[10]. A study from Ukraine evaluated 443 children aged 6-12 years with respect to attention-deficit hyperactivity disorder (ADHD) by using the Child Symptom Inventory-4 parent and teacher forms. The study found that 19.8% of Ukrainian children had ADHD[36]. A study by Sprafkin et al[5]. using the ECI-4 scale to screen psychiatric disorders according to DSM-IV criteria evaluated 224 preschool children and reported ADHD, oppositional defiant disorder (ODD), and PDD to be the most common diagnoses. There are problems associated with the difficulties of the period in diagnosing psychiatric disorders in this age group, and there are also very few scales that evaluate psychiatric disorders for which a validity and reliability study has been performed. This makes it more difficult to determine the incidence of psychiatric disorders in children aged 3-6 years. We found a higher rate of psychiatric disorders in children in the preschool period both in the clinical sample and the community sample than the rates reported by other countries and in the Erol et al[7]. study in our country. We evaluated each child with a semi-structured interview according to DSM-IV to increase the reliability of our study. The same clinician interviewed all children and families. Questions on period-specific problems and problems related to family attitudes were excluded. Lack of access to a physician because of problems regarding social security, the limited number of pediatric psychiatrists, negative connotations in the society regarding visiting a psychiatrist, and disregarding psychiatric problems in children may have all contributed to the higher incidence of morbidity in the general population sample observed in the present study when compared with the matching samples from certain studies from other countries[8,9]. The psychiatric disorder rate of 79% in the clinical sample may again be the result of the lack of association by the parents of these children's signs with psychiatric disorder and seeing a physician only as a last resort.

The most common diagnoses in the present study were anxiety disorders and DBDs in the general population and clinical samples, respectively. SAD (separation anxiety disorder) was the most common anxiety disorder observed. The literature reports anxiety disorders to be the most common psychiatric disorders observed in children and adolescents[37,38] In a

study conducted by Gadow et al.[9], the most common diagnosis was reported to be ADHD in 3-5-year-old children in the clinical and general population samples. A study investigating the incidence of anxiety in preschool children using a DSM-IV-based anxiety scale completed by the parents reported a rate of 16% for GAD, 24% for obsessive compulsive disorder (OCD), 14% for SAD, and 56% for social anxiety[39]. OCD was more common within the anxiety disorders, albeit not statistically significant, in the general population sample, and such children were described by their mothers as "very tidy" and "clean". This particular result can be attributed to the fact that tidiness and cleanliness are regarded as positive qualities in the Turkish society and are not considered to be symptoms of a psychiatric problem.

We found interfamily relationship problems to be more common in the clinical sample, indicating the critical importance of the relationship between the parents themselves, between the parents and their children, and between the parents and their own parents in terms of the the development of psychiatric disorders. Another significant result from the present study was the fact that malnutrition was more common in the clinical sample. This result can be attributed to the forceful approaches of parents regarding nutrition. A study comparing 30 children aged 1-6 years with food rejection and another 30 children of the same age group regarding interfamily relationships found that families of children with food rejection had much worse relationships, and the anxiety scale scores were also higher[40]. The relation established between the parents and the child, environmental factors and the socioeconomic level are known to affect the present and future emotional state of the child[41,42].

Comparison of individual diagnoses with respect to gender did not reveal any significant differences between boys and girls in any of the diagnosis groups. This finding is consistent with the results reported in the study by Lavigne et al.[8] on the incidence of psychiatric disorders in preschool children.

The results of the present study suggest that parental separation, medical complications after birth, lack of nursing, retarded development, and family history of psychiatric disorders are significant in terms of the development of psychiatric disorders. The incidence of psychiatric disorders during early childhood was higher than reported in a number of international studies. These data may be useful and important for determining healthcare policies in Turkey. A major limitation of the present study was the fact that the sample size was not sufficiently large to evaluate psychiatric disorders with a lower incidence. Diagnoses were established according to DSM-IV diagnostic criteria following clinical evaluations and interviews with the parents. Feedback was not sought from the teachers of children attending daycare centers. Symptoms have to be observed in more than one setting to establish the diagnosis for certain psychiatric disorders according to DSM-IV diagnostic criteria, and thus the lack of feedback from daycare center teachers was also a constraint of the study. Another limitation of the study was that certain sociodemographic data and information on the development of children were gathered through parents, as the records of the patients in healthcare centers did not provide adequate data regarding the antenatal and postnatal histories and sociodemographic information. Other limitations of our study were that the medical records of the children were not reviewed, only verbal confirmation was obtained for the presence of psychiatric disorders in the family, the parents were not evaluated by an adult psychiatrist, and the socioeconomic level and the location of the house and room were not evaluated by a social care specialist.

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