

The Prevalence of Anxiety and Mood Disorders, and Demographic Characteristics in Elementary School Students



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SUMMARY

Objective: Childhood psychiatric disorders can prevent individuals from reaching their full potential, and disrupt normal development. Empirical data on the prevalence and incidence of childhood psychiatric disorders are fundamental to understanding the etiology and natural history of such disorders. There have been fewer epidemiologic investigations aimed at estimating the prevalence, incidence, and associated risk factors of psychiatric disorders in children and adolescents, as compared to adults. This study aimed to assess the prevalence of mood disorders (MDs) and anxiety disorders (ADs) in a representative sample of elementary school children from Turkey, providing prevalence rates that were previously unavailable.

Materials and Methods: In all, 12 schools were randomly selected and stratified according to socioeconomic status by the İzmir Directorate of National Education. The sample consisted of 419 randomly selected elementary school students, with a 5% margin of error and alpha (t) of 1%. The study included children aged 6-14 years. In total, 417 students were interviewed (total response rate of 99.5%). The 417 students were assessed using the Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version (K-SADS-PL), Child Behavior Check List (CBCL), Teacher Report Form (TRF), and Impairment Criterion Scale (ICS).

Results: The prevalence of MDs and ADs without considering impairment was 2.9% and 13.9%, respectively, versus 1.4% and 2.6% with considering impairment, respectively.

Conclusion: The prevalence of MDs and ADs in the present study's sample are similar to those reported from the Western studies. With the inclusion of diagnosis-specific impairment criteria the rates reduced slightly, as previously reported.

Keywords: Anxiety disorders, mood disorders, prevalence, child

INTRODUCTION

Epidemiologic data are essential for healthcare services planning, implementation of strategies for detection and early intervention, determination of the etiology of disease and risk factors, and the potential consequent benefits to public health (Polanczyk and Jensen 2008; Costello et al. 2005). In this way, priority requirements can be demonstrated and effective for children's mental health services programs could be improved; however, in developing countries, systematic research on childhood psychiatric disorders is insufficient

(Eapen et al. 1998). In epidemiological studies conducted abroad the prevalence of psychiatric disorders in children and adolescents ranges from 9.5%-19.8% (Costello et al. 2003; Ford et al. 2003). Some studies report that the prevalence of psychiatric disorders in children is 10%-20% in community samples; the wide range is attributed to differences in sample demographics, sample size, and diagnostic tools across studies (Eapen et al. 1998; Steinhausen et al. 1998). A study from Turkey reported that the prevalence of problem behaviors in a community sample of 4-18-year-olds was 11.3% based on caregiver checklists (Erol et al. 2008).

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Depressive disorders and anxiety disorders (ADs) are also referred to as internalizing disorders (Kovacs and Devlin 1998) because their associated problems/disturbances are self-contained, as compared to such externalizing disorders as attention deficit-hyperactivity disorder (ADHD), conduct disorder (CD), oppositional defiant disorder (ODD), and disruptive behavior disorders not otherwise specified. Thus, recognition by the people around and treatment applications are low and insufficient levels than externalizing disorders. Most commonly, epidemiological studies on internalizing disorders focus on depressive disorders (especially major depressive disorder [MDD] and dysthymia) and ADs. A Turkish study on elementary school students reported that 30% had moderately severe symptoms of depression and 6% had severe symptoms of depression according to the Children's Depression Inventory (CDI) (Öy 1991), and another on high school students reported that 27% had symptoms of depression based on the Beck Depression Inventory (BDI) (Çuhadaroglu and Sonuvar 1992).

To the best of our knowledge the prevalence in Turkey of mood disorders (MDs) and ADs, except for scale studies, which investigated in detail, and the use of scale with clinical evaluation is not available, have not been published. As such, the present study aimed to determine the prevalence of MDs and ADs in Turkish elementary school students (1st-5th grade).

MATERIALS and METHODS

This cross-sectional study satisfied most of the criteria for epidemiological research, including a well-defined and sufficiently sized school sample, consideration of the per year list a 1-stage evaluation method, and use of DSM-IV (American Psychiatric Association 1994) diagnostic criteria, face to face semi-structured diagnostic interviews (KSADS-PL) with the students, their parent, and teachers, Child Behavior Check List (CBCL), and Teacher Report Form (TRF).

This study was conducted in the central district of Izmir—the third largest city in Turkey. The sample consisted of 419 elementary school students randomly selected from among 27,080 students, with a 5% margin of error, alpha (α) of 1%, and assumed prevalence of psychiatric disorders of 20%. In all, 12 schools from among 66 were selected via randomized sampling in terms of low/moderate/high socioeconomic status according to the Ministry of National Education Izmir Provincial Directorate. From among these 12 schools 419 students were selected from per year list via randomized sampling. Written informed consent was provided by the parents of all the participating students, and the study protocol was approved by the Ege University Ethics Committee. Among the 419 students, 2 could not be contacted because they transferred to schools outside the city, of which 1 was a male

in 1st grade and 1 was a female in 2nd grade. The remaining 417 students' parents and teachers completed all the study scales, and were included in the study (99.5% response rate).

CBCL is a parent rating scale designed by Achenbach and Edelbrock (1983) for collecting data on competencies and problematic behaviors in children and adolescents aged 4-18 years. The scale was first adopted for use in Turkey by Akçakın (1985). Erol et al. (1995) then collected Turkish norms and reliability data for the scale. TRF is a teacher rating scale designed by Achenbach (1991) for assessing problematic behavior and school adaptation in students aged 5-18 years. Erol and Şimşek (1998) collected Turkish norms and reliability data for the 1991 version of the scale. All 417 students were clinically assessed, including psychiatric evaluation using KSADS-PL—a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children and adolescents, according to DSM-III-R and DSM-IV criteria (Kaufman et al. 1997). The Turkish version of K-SADS-PL was reported to be reliable and valid for use in Turkey (Gökler et al. 2004).

The participants were assessed using K-SADS-PL and the Impairment Criterion Scale (ICS) was used to determine levels of functionality. A best estimate procedure was used to determine final diagnoses (Leckman et al. 1982); diagnoses were made following assessment of the teacher and parent rating scales, semi-structured interviews conducted with parents and children (K-SADS-PL), and evaluation of impairment criteria by an independent interviewer via separate interviews conducted with teachers and parents. Evaluation of impairment criteria was based on 4 domains via interviewing parents (relationship with sibling(s); relationship with friends; homework performance, and general adjustment at home) and 4 domains via teacher interviews (is the child problematic or not relationship with friends at school, general academic performance, and self-esteem). The teachers were interviewed in a semi-structured manner. All the items were rated as no problem at all (0), a little problematic (1), very problematic (2). Students were considered to be impaired if rated as very problematic in ≥ 1 domain or a little problematic in ≥ 2 domains. A similar approach has been used in earlier epidemiologic studies (Cho et al. 2009; Brootman et al. 2007).

Statistical analysis

Data were analyzed using SPSS (Statistical Package for the Social Sciences) v.15.0 for Windows. The confidence interval (CI) for the estimated prevalence of disorders was calculated using the binominal approximation method. The chi-square test for categorical variables was used and the level of statistical significance was set at $P < 0.05$. The Mann-Whitney U test was used to compare CBCL and TRF scores between those with and without a diagnosis.

RESULTS

Mean age of the students was 9.19 ± 1.4 years (range: 6-14 years). The sample included 225 males (54%) and 192 females (46%). Distribution of the students by grade was as follows: 1st grade: 18.7% (n = 78); 2nd grade: 19.7% (n = 82); 3rd grade: 19.9% (n = 83); 4th grade: 19.7% (n = 82) 5th grade: 19.7% (n = 82); absentee students: 2.4% (n = 10). The prevalence of MDs and ADs was 1.4% (n = 6) and 2.6% (n = 11), respectively, based on the best estimate procedure, versus 2.9% (n = 12) and 13.9% (n = 58), respectively, without considering impairment. None of the students were diagnosed as bipolar disorder (Table 1).

The prevalence of MD, MDD, and dysthymic disorder without impairment, respectively, was 4.2%, 3.6%, and 0.5% in the females, versus 1.8%, 1.8%, and 0% in the males ($\chi^2 = 0.239$, $P = 0.123$), ($\chi^2 = 0.359$, $P = 0.190$), ($\chi^2 = 0.460$, $P = 0.460$). The prevalence of ADs, specific/simple phobia (S/SP), separation anxiety (SAD), generalized anxiety (GAD), posttraumatic stress disorder (PTSD), and obsessive-compulsive disorder (OCD) without impairment, respectively, was 16.1%, 13.5%, 0%, 2.6%, 0.5%, and 0.5% in the females, versus 12%, 8.9%, 1.8%, 0.9%, 0.4%, and 0.9% in the males ($\chi^2 = 0.257$, $P = 0.141$), ($\chi^2 = 0.158$, $P = 0.880$), ($\chi^2 = 0.128$, $P = 0.840$), ($\chi^2 = 0.256$, $P = 0.165$), ($\chi^2 = 1.000$, $P = 0.709$), ($\chi^2 = 1.000$, $P = 0.559$). The prevalence of MDs, MDD, and dysthymic disorder with impairment, respectively, was 2.6%,

Table 1. The prevalence of MDs and ADs.

	Prevalence			Prevalence*		
	n	%	95% CI	n	%	95% CI
Mood Disorders	12	2.9	2.884-2.916	6	1.4	1.389-1.411
Major Depression	11	2.6	2.585-2.615	6	1.4	1.389-1.411
Dysthymic Disorder	1	0.2	0.196-0.204	0	0	-
Bipolar Disorder	0	0	-	0	0	-
Anxiety Disorders	58	13.9	13.867-13.903	11	2.6	2.585-2.615
Specific/Simple Phobia	46	11	10.970-11.030	7	1.7	1.688-1.712
Separation Anxiety	4	1	0.991-1.009	2	0.5	0.494-0.506
Generalized Anxiety	7	1.7	1.688-1.712	1	0.2	0.196-0.112
PTSD	2	0.5	0.494-0.506	0	0	-
OCD	3	0.7	0.692-0.708	1	0.2	0.196-0.204

n: Number of cases with a diagnosis; %: percentage of cases with a diagnosis; 95% CI: 95% confidence interval.

Prevalence: Prevalence based on K-SADS-PL only.

Prevalence*: Prevalence based on K-SADS-PL and impairment criteria.

Table 2. The prevalence of MDs and ADs according to gender.

		Females			Males		
		n	%	95% CI	n	%	95% CI
Mood Disorder	*	8	4.2	4.172-4.228	4	1.8	1.783-1.817
	**	5	2.6	2.578-2.622	1	0.4	0.392-0.408
Major Depression	*	7	3.6	3.574-3.626	4	1.8	1.783-1.817
	**	5	2.6	2.578-2.622	1	0.4	0.392-0.408
Dysthymic Disorder	*	1	0.5	0.491-0.509	0	0	-
	**	0	0	-	0	0	-
Anxiety Disorder	*	31	16.1	16.049-16.151	27	12	11.958-12.042
	**	3	1.6	1.583-1.617	8	3.6	3.576-3.624
Specific/Simple Phobia	*	26	13.5	13.452-13.548	20	8.9	8.863-8.937
	**	3	1.6	1.583-1.617	4	1.8	1.783-1.817
Separation Anxiety	*	0	0	-	4	1.8	1.783-1.817
	**	0	0	-	2	0.9	0.888-0.912
Generalized Anxiety	*	5	2.6	2.578-2.622	2	0.9	0.888-0.912
	**	0	0	-	1	0.4	0.392-0.408
PTSD	*	1	0.5	0.491-0.509	1	0.4	0.392-0.408
	**	0	0	-	0	0	-
OCD	*	1	0.5	0.491-0.509	2	0.9	0.888-0.912
	**	0	0	-	1	0.4	0.392-0.408

n: Number of cases with a diagnosis; %: percentage of cases with a diagnosis; 95% CI: 95% confidence interval.

* Prevalence based on K-SADS-PL only.

** Prevalence based on K-SADS-PL and impairment criteria.

2.6%, and 0% in the females, versus 0.4%, 0.4%, and 0% in the males ($\chi^2 = 0.099$, $P = 0.075$), ($\chi^2 = 0.099$, $P = 0.075$). The prevalence of ADs, S/SP, SAD, GAD, PTSD, and OCD with impairment, respectively, was 1.6%, 1.6%, 0%, 0%, 0%, and 0% in the females, versus 3.6%, 1.8%, 0.9%, 0.4%, 0%, and 0.4% in the males ($\chi^2 = 0.237$, $P = 0.169$), ($\chi^2 = 1.000$, $P = 0.587$), ($\chi^2 = 0.502$, $P = 0.291$), ($\chi^2 = 1.000$, $P = 0.540$). All psychiatric disorders with and without considering impairment were more common in the females, except SAD and OCD, but the difference between genders was not significant (Table 2).

There wasn't a significant difference in the prevalence of MDs or ADs between the genders. As expected, the prevalence of MDs was calculated to be 2.6% among 1st graders, 0% among 2nd graders, 2.4% among 3rd graders, 0% among 4th graders, 0% among 5th graders, and 20% among the absentee students, the prevalence of MDD was 2.6% among 1st graders, 0% among 2nd graders, 2.4% among 3rd graders, 0% among 4th graders, 0% among 5th graders, and 20% among absentee students, and the prevalence of dysthymic disorder was 0% among all the students. The prevalence ADs was calculated to be 5.1%, 0%, 1.2%, 2.4%, 1.2%, and 30% among 1st, 2nd, 3rd, 4th, and 5th graders, and absentee students, respectively, the prevalence of S/SP was 3.8%, 0%, 0%, 1.2%, 1.2%, and 20% among 1st, 2nd, 3rd, 4th, and 5th

graders, and absentee students, respectively, the prevalence of SAD was 0, 0%, 1.2%, 0%, 0%, and 10% among 1st, 2nd, 3rd, 4th, and 5th graders, and absentee students, respectively, the prevalence of GAD was 1.3% among 1st graders and 0% among all other students, the prevalence of OCD was 1.2% among 4th graders and 0% among all other students, and the prevalence of PTSD was 0% among all the students (Table 3).

Among the students diagnosed with an MD, 66.7% ($n = 4$) had parents that were married and 33.3% ($n = 2$) had parents that were divorced, whereas among the students not diagnosed with an MD, 89.5% ($n = 368$) had parents that were married and 10.5% ($n = 43$) had parents that were divorced. Among the students diagnosed with an AD, the parents of 81.8% ($n = 9$) were married and the parents of 18.2% ($n = 2$) were divorced, whereas among the students not diagnosed with an AD, the parents of 89.4% ($n = 363$) were married and the parents of 10.6% ($n = 43$) were divorced. Accordingly, the marital status of parents was similar among the patients with an MD and AD ($P = 0.129$, $P = 0.337$) (Table 4). There wasn't a significant difference in parental marital status between the students diagnosed and not diagnosed with S/SP, SAD, GAD, and OCD ($P = 0.168$, $P = 0.796$, $P = 0.892$, and $P = 0.892$).

Table 3. The prevalence of MDs and ADs according to grade.

		1st Grade		2nd Grade		3rd Grade		4th Grade		5th Grade		Absentee students	
		n	%	n	%	n	%	n	%	n	%	n	%
Mood Disorder	*	2	2.6	2	2.4	3	3.6	2	2.4	1	1.2	2	20
	**	2	2.6	0	0	2	2.4	0	0	0	0	2	20
Major Depression	*	2	2.6	2	2.4	2	2.4	2	2.4	1	1.2	2	20
	**	2	2.6	0	0	2	2.4	0	0	0	0	2	20
Dysthymic disorder	*	0	0	0	0	1	1.2	0	0	0	0	0	0
	**	0	0	0	0	0	0	0	0	0	0	0	0
Anxiety Disorder	*	12	15	10	12	14	17	11	13	8	9.8	3	30
	**	4	5.1	0	0	1	1.2	2	2.4	1	1.2	3	30
Specific / Simple Phobia	*	10	13	9	11	12	15	8	9.8	5	6.1	2	20
	**	3	3.8	0	0	0	0	1	1.2	1	1.2	2	20
Separation Anxiety	*	1	1.3	0	0	1	1.2	1	1.2	0	0	1	10
	**	0	0	0	0	1	1.2	0	0	0	0	1	10
Generalized Anxiety	*	1	1.3	1	1.2	1	1.2	2	2.4	2	2.4	0	0
	**	1	1.3	0	0	0	0	0	0	0	0	0	0
PTSD	*	0	0	0	0	2	2.4	0	0	0	0	0	0
	**	0	0	0	0	0	0	0	0	0	0	0	0
OCD	*	0	0	1	1.2	0	0	1	1.2	1	1.2	0	0
	**	0	0	0	0	0	0	1	1.2	0	0	0	0

n: Number of cases with a diagnosis; %: percentage of cases with a diagnosis; 95% CI: 95% confidence interval.

* Prevalence based on K-SADS-PL only.

** Prevalence based on K-SADS-PL and impairment criteria.

Table 4. Comparison of the students with an MD and AD according to parental marital status and socioeconomic level.

	Mood Disorder			Anxiety Disorder		
	Diagnosed cases	Non-diagnosed cases	P	Diagnosed cases	Non-diagnosed cases	P
	%	%		%	%	
Parental Marital Status						
Married	66.7	89.5	0.129	81.8	89.4	0.337
Divorced	33.3	10.5		18.2	10.6	
Socioeconomic Level						
Low	16.7	33.6	0.025	27.3	33.5	0.677
Moderate	83.3	32.4		45.5	32.8	
High	0	34		27.3	33.7	

Statistical analysis: Chi-square test ($P < 0.05$ was statistically significant).

In all, 16.7% and 83.5% of the students diagnosed with an MD were of high and moderate socioeconomic status, versus 33.6% high, 32.4% moderate, and 34.1% low socioeconomic status among those not undiagnosed with an MD. Accordingly, the prevalence of an MD diagnosis was significantly higher among the students of moderate socioeconomic status ($P = 0.025$). Among the students diagnosed with an AD, 27.3%, 45.5%, and 27.3% were of high, moderate, and low socioeconomic status, versus 33.5% high, 32.8% moderate, and 33.7% low socioeconomic status among those not diagnosed with an AD; the difference in socioeconomic status between the students with and without an AD was not significant ($P = 0.677$) (Table 4).

There weren't any significant differences in socioeconomic status between those with and without S/SP, SAD, GAD, and OCD ($P = 0.355$, $P = 0.602$, $P = 0.367$, and $P = 0.371$, respectively).

Paternal level of education among the students diagnosed with an MD was 16.7% uneducated, 66.7% elementary school, and 16.7% high school, versus 6.1% uneducated, 45.7% elementary school, 10.7% middle school, 24.3% high school, and 13.1% university among those not diagnosed with an MD. Paternal level of education among the students diagnosed with an AD was 18.2% uneducated, 54.5% elementary school, 18.2% high school, and 9.1% university, versus 5.9% uneducated, 45.8% elementary school, 10.8% middle school, 24.4% high school, and 13.1% university among those not diagnosed with an AD; the difference in paternal level of education between the students with and without an AD was not significant ($P = 0.525$, $P = 0.372$). There weren't any significant differences in paternal level of education between the students with and without S/SP, SAD, GAD, and OCD ($P = 0.114$, $P = 0.671$, $P = 0.882$, and $P = 0.159$, respectively).

Maternal level of education among the students diagnosed with an MD was 33.3% uneducated and 66.7% elementary school, versus 14.6% uneducated, 50.1% elementary school,

8% middle school, 17.5% high school, and 9.7% university among those not diagnosed with an MD. Maternal level of education among the students diagnosed with an AD was 18.2% uneducated, 54.5% elementary school, 9.1% high school, and 18.2% university, versus 14.8% uneducated, 50.2% primary school, 8.1% middle school, 17.5% high school, and 9.4% university among those not diagnosed with an AD; the difference in maternal level of education between the students with and without an AD was not significant ($P = 0.469$, $P = 0.677$). There weren't any significant differences in maternal level of education between those with and without S/SP, SAD, GAD, and OCD ($P = 0.783$, $P = 0.739$, $P = 0.912$, $P = 0.051$).

There were significant differences in all CBCL scores between those with and without a diagnosed MD ($P < 0.05$); activity and social scores were lower, and social withdrawal, somatic problems, anxiety-depression, social problems, thought problems, attention problems, delinquency, aggression, internalization, externalization, and total problems scores were higher in those diagnosed with an MD. There were significant differences in CBCL socialization, somatic problems, social problems, attention problems, delinquency, aggression, and internalization scores between those with and without a diagnosed AD ($P < 0.05$); social scores were lower, and somatic problems, social problems, attention problems, delinquency, aggression, and internalization scores were higher in those diagnosed with an AD. There weren't any significant differences in CBCL activity ($P = 0.148$), social withdrawal ($P = 0.262$), anxiety-depression ($P = 0.081$), thought problems ($P = 0.056$), externalization ($P = 0.080$), or total problems scores between the students with and without a diagnosed AD ($P = 0.067$).

TRF appropriate behavior, attention problems, delinquency, internalization, and total problems scores were significantly different between the students with and without a diagnosed MD ($P < 0.05$). Appropriate behavior scores were lower, and attention problems, delinquency, internalization, and

total problems scores were higher in those diagnosed with an MD. There weren't any significant differences between those with and without an MD with regard to TRF academic performance ($P = 0.220$), hard work ($P = 0.337$), learning ($P = 0.362$), happiness ($P = 0.098$), total compliance ($P = 0.103$), social withdrawal ($P = 0.699$), anxiety-depression ($P = 0.839$), social problems ($P = 0.062$), thought problems ($P = 0.073$), externalization ($P = 0.479$), or socialization ($P = 0.087$) scores. TRF hard work, appropriate behavior, learning, happiness, total compliance, social problems, thought problems, attention problems, delinquency, aggression, internalization, and total problems scores differed significantly between the students with and without a diagnosed AD ($P < 0.05$). TRF hard work, appropriate behavior, learning, happiness, and total compliance scores were lower, and social problems, thought problems, attention problems, delinquency, aggression, internalization, and total problems scores were higher in those diagnosed with an AD. There weren't any significant differences in TRF academic performance ($P = 0.170$), social withdrawal ($P = 0.055$), somatic problems ($P = 0.227$), anxiety-depression ($P = 0.200$), or externalization ($P = 0.479$) scores between the students with and without a diagnosed AD.

DISCUSSION

The literature includes a large number of studies on the prevalence of psychiatric disorders in children and adolescents, but most are based on questionnaires or one informant source. For healthy epidemiological data, has been reported that to combine clinical psychiatric evaluation of children, receiving information from teachers and parents and consideration of impairment criteria provide high sensitive and specific diagnosis (Ford et al. 2003; Eapen et al. 1999). The prevalences of MDs and ADs in the present study are similar to those published earlier, i.e. a mean prevalence of MDs of 4% (range: 0.2%-17%) (Costello et al. 2004) and ADs of 8% (2%-24%) (Costello et al. 2005). In the present study the prevalence of MDs and ADs was 2.9% and 13.9%, respectively, based on clinical assessment only, and 1.4% and 2.6%, respectively, based on clinical assessment and consideration of impairment criteria (according to both teacher and parent reports).

There is wide variability in prevalence rates across studies (Costello et al. 2004; Roberts et al. 1998), which suggests that heterogeneity in prevalence rates of the disorders is associated with methodological differences, such as 1- or 2-stage evaluation (Leung et al. 2008; Lahey et al. 1999; Swanson et al. 1998). Additionally, prevalence rates can differ according to study populations (such as age group, and clinical or school samples) and culture, but it has been suggested that

geographic location plays a limited role in such variability (Roberts et al. 2006).

The 1-stage study design is considered by many to be the gold standard and less complex than other methods, and in a 1-stage study every participant sampled undergoes a complete clinical interview, leading directly to a diagnosis; however, due principally in response to the economic constraints associated with the very labor-intensive 1-stage method, researchers commonly use the 2-stage design (Cartwright-Hatton et al. 2006). The 2-stage design is less expensive than the 1-stage design, and facilitates use of much larger samples. In a 2-stage design study all participants undergo a brief screening stage and a selection of participants proceed to the second stage, which includes a complete diagnostic interview, but very few self-report measures have sufficient sensitivity and specificity for identifying DSM disorders (Cartwright-Hatton et al. 2006).

The prevalence of depressive disorder was reported to be <3% in school-age children. More recent studies report that the prevalence of MDD is 0.6%-3.0% in children and adolescents (Green et al. 2005; Canino et al. 2004), that of dysthymic disorder is 0.3% in those aged 4-17 years and 3.4% in 11-17-year-olds (Roberts et al. 2007; Canino et al. 2004), and that the prevalence of bipolar disorder is 0%-2.1% (Merikangas et al. 2009). As reported earlier, in the present study the prevalence of depressive disorder, dysthymic disorder, and bipolar disorder was 1.4, 0%, and 0%, respectively. ADs are among the most common mental disorders of early childhood, and the reported prevalence of ADs varies (Cartwright-Hatton et al. 2006). According to many studies, approximately 1 every 30 elementary school students has an AD (Ford et al. 2003). The most commonly reported AD in young age group is SAD (Cartwright-Hatton et al. 2006). GAD and social anxiety disorder are the most common in youth whereas panic disorder and OCD are rarely reported in children aged <12 years (Merikangas et al. 2009). In children the prevalence of panic disorder and agoraphobia is <0.5% (Cartwright-Hatton et al. 2006), and that of PTSD is 0.5%-4% (Sadock and Sadock 2012b). According to epidemiological studies, PTSD has been found not detected in most of the other ADs (Merikangas et al. 2009). The prevalence of SAD was reported to be 0.4% (Lavigne et al. 1996) and 20.2% (Sugawara et al. 1999), although the median prevalence is probably 4% in youth. GAD was reported to occur in 0.16% (Ford et al. 2003) and 11.1% of children (Boyle et al. 1993), and the prevalence of OCD was reported to be 0.03% (Ford et al. 2003) and 2.6% (Sugawara et al. 1999) in pre-adolescent children. The reported prevalence of S/SP varies widely by study. Although 2 studies reported prevalence rates for phobias >20% (Kroes et al. 2001; Sugawara et al. 1999), others reported rates <1% in pre-adolescent children (Cartwright-Hatton et al. 2006). In the present study the prevalence of S/SP, SAD, GAD, OCD, PTSD, panic disorder,

and agoraphobia was 1.7%, 0.5%, 0.2%, 0.2%, 0%, and 0%, respectively, which is similar to earlier reports.

Canino et al. (2004) studied 1886 cases aged 4-17 years using DISC-IV (Diagnostic Interview Schedule for Children Version IV) and CGAS (Children's Global Assessment Scale), and reported respective prevalences of MDs, MDD, and dysthymic disorder of 3.4%, 3.0%, and 0.5% without impairment, and 1.7%, 1.4%, and 0.3% with impairment, and respective prevalences of ADs, SAD, GAD, and PTSD of 6.9%, 3.1%, 2.2%, and 0.8% without impairment, and 2.9%, 1.5%, 1.0%, and 0.1% with impairment. Canino et al.'s (2004) MDs findings are similar to those observed in the present study (2.9%). When including impairment criteria reducing for MDs, again (1.4%) were found to be similar. Canino et al. (2004) reported an ADs prevalence rate of 6.9% without impairment, whereas in the present study it was 13.9%; the difference might be because S/SP and OCD were not examined in Canino et al.'s (2004) study. In the present study when impairment was considered the prevalence of MDs and ADs decreased significantly, as in Canino et al.'s (2004) study.

It was reported that the prevalence of psychiatric disorders vary when impairment is taken into account (McArdle et al. 2004; Narrow et al. 1998; Costello et al. 1996; Shaffer et al. 1996). Eapen et al. (2003) evaluated 329 children aged 6-18 years (using K-SADS and CGAS) and reported that 47 with a psychiatric diagnosis had significant impairment; the prevalence of MDs and ADs was 3% and 2.8%, respectively, with impairment, but MD and AD subtypes were not specified. Their reported ADs prevalence (2.6%) is similar to that noted in the present study; however, in contrast to Eapen et al. (2003) the prevalence of ADs was higher than that of MDs in the present study. These differences might have been due to differences in the age range of each study's participants (Eapen et al.'s was 6-18 years, versus 6-14 years in the present study). It is known that the prevalence of MDs is higher among adolescents than among younger children (Sadock and Sadock 2012a) and that ADs are much more common than MDs in preadolescents than in adolescents (Cartwright-Hatton et al. 2006).

Roberts et al. (2007) reported prevalences of ADs and MDs of 6.9% and 3%, respectively, among 4175 children aged 11-17 years (based on DISC-IV and). Roberts et al. (2007) observed that the most common subtype of MD and AD was MDD and agoraphobia, respectively. The prevalence of AD was reported respectively, 6.9%, 3.42% with DISC impairment, 1.36% with below CGAS 69 and for agoraphobia: 4.5%, 1.6%, 0.8%, for GAD: 0.4%, 0.4%, 0.2%, for panic disorder: 0.7%, 0.4%, 0.2%, for PTSD: 0.6%, 0.5%, 0.2%, for social phobia: 1.6%, 1%, 0.3%, for MD: 3%, 2%, 1.1%, for mania: 0.4%, 0.3%, 0.2%, for MDD: 1.7%, 1.5%, 0.7%, for dysthymia: 0.3%, 0.3%, 0.2%. Roberts et al. (2007) suggested that prevalence rates decrease significantly when

impairment is considered, as observed by others (Canino et al. 2004; Costello et al. 2003; Ford et al. 2003) and in the present study. Roberts et al. (2007) reported that a prevalence of ADs with or without impairment (1.36%, 3.42%, 6.9%) lower than that in the present study (2.6%, 6.7%, 13.9%), which might be because S/SP was not examined in their study. Canino et al. (2004) reported that the most common AD was separation anxiety disorder (3.1%) and Roberts et al. (2007) reported the most frequent AD was agoraphobia (4.5%), whereas in the present study S/SP (11%) was the most common. Differences between studies in the most common AD type might be due to differences in age distribution of the study groups. Merikangas et al. (2010) studied 3042 cases aged 8-15 years using a cross-sectional method and DISC-IV, and reported that the prevalence of MDs, and PD or GAD was 3.7% and 0.7%, respectively, which differs from others studies (including the present study); when they considered impairment the prevalences decreased a little (prevalence estimates of MD and AD were, respectively, 2.9% and 0.4%), which might have been due to the fact that they only used DISC-IV. A 2-stage study that included 199 children aged 6-15 years in the United Arab Emirates (1998) reported that the prevalence of MDs and ADs was 3.2% and 1.6%, respectively. Although Eapen et al. studied an age group similar to that in the present study, they reported an MDs prevalence rate higher than that of ADs (Eapen et al. 1998), which might have been due to their use of 2-stage evaluation. A study from Germany that included 17,641 children aged 7-17 years and their families with evaluating only scale on the phone reported that the prevalence of depressive disorders and ADs was 10.7% and 14.3% excluding impairment, and 5.6% and 6.3% including impairment, respectively, among children aged 7-10 years (Ravens-Sieberer et al. 2008); both rates are higher than observed in the present study. The reason for this height can be used the only scale in assessing by Ravens-Sieberer et al. (2008).

It has been reported that anxiety and depressive disorders are more common in girls and that ADHD is more common in boys, although the differences are not significant (Roberts et al. 2007; Costello et al. 2004). Eapen et al. (2003) reported that MDs were more common in adolescent girls than boys, but that the difference was not significant. In the present study there weren't any significant differences in the prevalence of psychiatric disorders between genders. In many studies MDs (Merikangas et al. 2010; Canino et al. 2004) and ADs (Leung et al. 2008) were reported to be more common in girls. Leung et al. (2008) reported that gender differences in ADs disappear when impairment criteria are considered. Canino et al. (2004) suggested that prevalence rates for depressive disorders, ADs, and social phobia tend to increase with age. They also reported that the prevalence of SAD was not associated with age, which is consistent with the present findings.

In previous years, general population and clinical surveys in many studies, family factors were found to be associated with psychiatric disorders (Eapen et al. 1998; Gureje and Omigbodun 1995; Rutter et al. 1975). In this context, large family size, chronic life difficulties a history of psychiatric disorder, and an alcohol problem in a family member are associated with childhood psychiatric disorders. In contrast to many studies, Roberts et al. (2007) did not observe an association between rates of disorder and indicators of socioeconomic status. In addition, Eapen et al. (2003) reported that there wasn't an association between childhood psychiatric disorders, and age, family size, socioeconomic status, parental education, or parental marital status, which consistent with other published study (Ghubash et al. 1992). Likewise, age, parental level of education, and parental marital status were not associated with the prevalence of childhood MDs or ADs in the present study, but the prevalence of MDs was higher among the students of moderate socioeconomic status. Canino et al. (2004) reported that children whose parents are not married are likely to meet the criteria for MDD, and Roberts et al. (2007) reported low rates of ADs in children whose parents are married. In earlier studies parental level of education and socioeconomic status were associated with childhood psychiatric disorders (Costello et al. 2001; Bird et al. 1988; Bor et al. 1997; Brooks-Gunn and Duncan 1997); however, in the present study parental level of education and socioeconomic status were not associated with psychiatric disorders in children, as reported by Canino et al. (2004).

To the best of our knowledge the present study is the first to described MDs and ADs prevalence rates in Turkey. The present study sample consisted of students in grades 1-5 from the central district of İzmir—the third largest city in Turkey. The present study sample included only elementary school students and is not representative of all Turkish children. As such, additional research is needed to improve the mental health of Turkish children and adolescents. As is the present study, most of the studies cited herein are cross-sectional studies that can only provide a snapshot of disorder prevalences during a particular time period (Cartwright-Hatton et al. 2006). Follow-up studies are needed for detecting children that affected from childhood psychiatric disorders.

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