

The Prevalence of Generalized Anxiety Disorder and Comorbidity Among Psychiatric Outpatients

Murat ÖZCAN, Faruk UĞUZ, Ali Savaş ÇİLLİ

SUMMARY

Objective: In this study, we aimed to investigate the prevalence, association with sociodemographic characteristics, and comorbidity with other anxiety and depressive disorders of generalized anxiety disorder (GAD) among a sample of psychiatric outpatients.

Method: In the first phase of the study, an outpatient psychiatry clinic physician interviewed 950 consecutive patients who presented to the psychiatric outpatient clinic of a university hospital using the GAD module of the CID-I (Composite International Diagnostic Interview, version 2.1) during a 4-month period. The 99 patients diagnosed with GAD in the first phase were referred to the research physician for further evaluation. In the second phase, patients were interviewed by using CID-I anxiety and mood disorder (major depression, dysthymic disorder) modules. In this way, 12-month additional diagnoses were examined, and the diagnosis of GAD was confirmed. One patient was excluded for not meeting the GAD criteria during reexamination by the researcher physician.

Results: Ninety-eight patients (10.3%) met DSM-IV criteria for GAD and 89 (90.8%) of the cases had either a comorbid depressive disorder or an anxiety disorder. The rates of comorbidity with any of the depressive or anxiety disorders were 84.7% and 56.1%, respectively. The most common comorbid diagnosis was major depression (83.7%). The most common anxiety disorders were social phobia (30.6%), obsessive-compulsive disorder (OCD) (19.4%), and specific phobia (17.4%). The prevalence of GAD was significantly higher in women, married individuals, housewives, non-working young women, subjects with a history of medical illness, and those with a low educational level.

Conclusion: Our results show that among psychiatric outpatients, GAD has a high comorbidity rate with depressive and other anxiety disorders, and it is associated with some sociodemographic characteristics, such as gender, marital status, employment status, and educational level.

Key Words: Generalized anxiety disorder, prevalence, outpatients, comorbidity

INTRODUCTION

General anxiety disorder (GAD) is a highly prevalent and important psychiatric disorder. The point prevalence of GAD was reported as 2%-3% and lifetime prevalence was reported to be approximately 5% (Kessler et al., 1994; Faravelli et al., 1989; Wittchen and Hoyer, 2001). In the Turkish Mental Health Profile Research Study, the 12-month prevalence of GAD was 0.7% (Kılıç, 1998). In addition, the prevalence of GAD in primary care patients who complain of anxiety problems is 22% (Wittchen, 2002).

Field studies point out that the majority of GAD patients have an additional diagnosis. In the National Comorbidity Survey (NCS), current comorbidity of psychiatric disorders in GAD was found to be 66.3% and lifetime comorbidity was 90.4% (Wittchen et al., 1994). Garyfallos et al. (1999) reported these comorbidity rates in patients who had presented to a psychiatry outpatient clinic to be 65% and 78%, respectively. The most common comorbid disorders in GAD are major depression, dysthymic disorder, social phobia, and simple phobia (Wittchen et al., 1994).

Despite how common it is, GAD is under-recognized in clinical practice (Stahl, 2000). Although it has been suggested that this is a result of psychiatrists focusing on major depression, which is frequently comorbid with GAD (Zimmerman and Chelminski, 2003), the number of studies on the prevalence and comorbidity of GAD in outpatients is insufficient. To the best of our knowledge, there

are no studies on the prevalence of GAD in psychiatric outpatients in Turkey. Increasing the related body of knowledge can result in better diagnosis and treatment of psychiatric outpatients in Turkey. In this study, we aimed to investigate the prevalence of GAD, its association with sociodemographic variables, and its comorbidity with other anxiety and depressive disorders among a sample of psychiatric outpatients.

METHOD

Sample

The study was carried out in Selçuk University Meram Medical Faculty, Psychiatric Outpatient Clinic In Konya, Turkey. The study was designed to include 1000 patients who present to the psychiatric outpatient clinic, without differentiating their treatment conditions; however, 950 patients who consecutively presented to the clinic between May and September 2002 were accepted as sufficient. Patients who were younger than 16 years old were excluded from the study. There were no other exclusion criteria.

Data collection tools

Patients filled out a sociodemographic form. The diagnoses of psychiatric disorders were determined using the depressive disorders and anxiety disorders modules of the 12-month, CIDI version 2.1 (Composite International Diagnostic Interview) (World Health Organization, 1997).

CIDI is a structured interview form developed according to the diagnostic criteria of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and the World Health Organization's International Classification of Diseases (ICD-10). CIDI was developed as a common project of the World Health Organization (WHO) and United States of America Alcohol and Substance Dependency and Mental Health Department. CIDI is designed for adults and can only be administered by clinicians who are appropriately trained. Although the form can be used for individuals with varying levels of education, cultural backgrounds, and intelligence levels, it is not appropriate for individuals with highly disordered cognitive functions. The validity and reliability of CIDI in different cultures has been demonstrated (Wittchen et al.1991). The 2.1 version of CIDI used in this study covers 17 diagnostic domains. The scale was adapted into Turk-

ish by Kılıç and Göğüş (1997) and has been used in various research studies in Turkey (Rezaki, 1995; Kırpinar et al., 1997; Erol et al., 1998).

Converting CIDI findings to a psychiatric diagnosis is done with a computer using algorithms. The data entry program suggested by WHO (Data Entry Program Version 3.0, Pfister, Hildegard, Max Planck Institute for Psychiatry Munich) was used in the present study and data were converted into SPSS (Statistical Package for the Social Sciences) format with an assistant computer program suggested by WHO. For determining the diagnoses, the 2.1 version of the DSM-IV algorithm for CIDI 2.1, suggested by WHO was used.

The sociodemographic form, which was developed by the researchers, included questions about patient age, marital status, education level, profession, and history of physical illness.

Procedure

In the first phase of the study, the physician of the outpatient psychiatric clinic interviewed 950 consecutive patients who presented to the clinic using the GAD module of CIDI 2.1. Patients diagnosed to have had GAD for the last 12 months were referred to the research physician for further evaluation. In the second phase, patients were interviewed using CIDI anxiety and depressive (major depression, dysthymic disorder) disorders modules. In this way, 12-month additional diagnoses were examined, and the diagnosis of GAD was confirmed. Although 2 different clinicians worked on each of the 2 phases, only one clinician was responsible for each phase. One out of 99 patients who met GAD diagnostic criteria in the pre-evaluation phase was excluded from the study, because he did not meet GAD criteria during reexamination by the research physician.

The sociodemographic form was administered to all patients with a GAD diagnosis. In addition, the sociodemographic form was administered to 372 patients without GAD who consecutively presented to the clinic and formed the control group.

Statistical Analysis

After saving the CIDI data with the appropriate data entry program, diagnoses were made with DSM-IV diagnostic criteria using the SPSS algorithm. In the comparison of the GAD group and control group, t-test was used for numeric variables, and for categorical variables (gender, marital status, educational level, profession, socio-

Table 1. The Sociodemographic Characteristics of Patients with Generalized Anxiety Disorder (GAD) and Patients Without GAD in the First 2 Months

	Patients with GAD diagnosis S = 60		Patients without GAD diagnosis S = 372	
	s	%	s	%
Gender ^a				
Women	49	81.7	233	62.6
Marital Status ^b				
Married	49	81.7	233	62.6
Single	8	13.3	121	30.4
Widow	3	5.0	21	5.7
Lives separated	-	-	5	1.3
Education ^c				
Illiterate	4	6.7	12	3.2
Literate and primary school graduate	35	58.3	141	37.9
High school or college graduate	16	26.2	155	41.7
University graduate	5	8.3	64	17.2
Profession ^d				
Housewife	40	66.7	143	38.4
Working	11	18.3	144	38.7
Retired	2	3.3	14	3.8
Non-working young woman	7	11.7	29	7.8
Student	-	-	40	10.8
Unemployed	-	-	2	0.5
Economic status ^e				
Low	4	6.7	47	12.7
Medium	49	81.7	262	70.4
Good	7	11.6	63	16.9
History of physical illness ^h				
Yes	12	20.0	38	10.2
No	48	80.0	334	89.8

^a $\chi^2 = 8.25$, $P = 0.003$

^d $\chi^2 = 23.43$, $P = 0.000$

^b $\chi^2 = 9.07$, $P = 0.028$

^c $\chi^2 = 3.35$, $P = 0.187$

^e $\chi^2 = 12.43$, $P = 0.006$

^f $\chi^2 = 4.83$, $P = 0.047$

economic status, and physical illness history), chi-square test was used.

FINDINGS

Of the 950 patients who admitted consecutively

during a 4-month period, 98 (10.3%) had GAD according to DSM-IV criteria. The mean age of the GAD patients (37.7 ± 11.1 years) was significantly higher than other outpatients' mean age (34.7 ± 11.4 years) ($t = 2.40$, $P = 0.017$). During the 4-

Table II. The Distribution of Comorbid Depressive and Other Anxiety Disorders in GAD Outpatients

Additional psychiatric diagnosis	s	%
Any depressive disorder	83	84.7
Major depression	82	83.7
Dysthymic disorder	3	3.1
Any other anxiety disorders	55	56.1
Social phobia	30	30.6
Obsessive compulsive disorder	19	19.4
Specific phobia	17	17.4
Panic disorder	8	8.2
Post traumatic stress disorder	3	3.1
1 additional diagnosis	37	37.8
2 additional diagnoses	37	37.8
3 or more additional diagnoses	15	15.3

month period, the prevalence of GAD was found to be significantly higher in women than men (12.8% vs. 6%, $\chi^2 = 8.70$, $P = 0.003$).

During the 2-month period when the GAD patients were compared to the controls, the prevalence of GAD was significantly higher in married patients when compared to single patients (17.4% vs. 6.6%, $\chi^2 = 9.07$, $P = 0.028$), higher in housewives and unworking young women compared to working subjects (21.9% and 19.4% vs 7.1%, $\chi^2 = 23.43$, $P = 0.000$), higher in patients with past histories of a physical disorder when compared to patients without such histories (24% vs. 12.6%, $\chi^2 = 4.83$, $P = 0.047$), and higher in illiterate and literate or primary school graduates compared to high school and university graduates (25% and 19.9% vs. 9.4% and 7.2%, respectively, $\chi^2 = 12.43$, $P = 0.006$). There was no significant relationship between economic status and the prevalence of GAD ($P = 0.187$). The sociodemographic characteristics of GAD patients and the controls, recorded during the 2-month period, are presented in Table I.

The rate of comorbid diagnoses of depressive or anxiety disorders in GAD patients ($s = 98$) in 12 months was 90.8% ($n = 89$). The number of comorbid diagnoses in patients was as follows: one additional diagnosis in 37 patients (37.8%); 2 additional diagnoses in 37 patients (37.8%); 3 or more additional diagnoses in 15 (15.3%) patients. An

additional diagnosis of any anxiety disorder was found in 56.1% of the patients and the most prevalent were social phobia (30.6%), obsessive compulsive disorder (OCD) (19.4%), and specific phobia (17.4%). Panic disorder (8.2%) and post-traumatic stress disorder were (PTSD) (3.1%) relatively rare. The comorbidity of any depressive disorder, major depressive disorder, and dysthymic disorder was 84.7%, 83.7%, and 3.1%, respectively (Table II). Although 30 (30.6%) of the GAD patients met the criteria for dysthymic disorder, they were not diagnosed as such because they had a major depression at the same time. There were no significant differences in terms of sociodemographics between patients with a comorbid depressive or anxiety disorder and those without (Table III).

It was found that GAD was the primary disorder in 48 (53.9%) of 89 patients with comorbid disorders, that it had started in the same year with the comorbid disorders in 7 (7.9%) of the remaining 41 patients, and started after the onset of the additional diagnosis in 34 (38.2%) patients. When found with other anxiety disorders, GAD was the primary diagnosis in 34.7% ($n=17$) of the patients. This rate was 73.5% ($n=61$) in depressive disorders and GAD developed after the onset of depressive disorders only in 12% ($n=10$) of the patients. The age of onset of GAD was 32.0 ± 10.0 years and the onset of specific phobia (23.1 ± 12.0

Table III. Sociodemographic Characteristics of GAD Patients with An Additional Diagnosis and GAD Patients Without An Additional Diagnosis

	Additional diagnosis S = 9		Additional diagnosis S = 89	
	s	%	s	%
Age ^a , mean $\pm$ SD	37.3 $\pm$ 10.9		41.6 $\pm$ 12.5	
Age of Onset ^b , mean $\pm$ SD	31.7 $\pm$ 10.4		34.7 $\pm$ 9.9	
Gender ^c				
Woman	8	88.9	69	77.5
Marital Status ^d				
Married	9	100.0	71	79.8
Single	-	-	11	12.3
Widow	-	-	7	7.9
Lives alone	-	-	-	-
Educational status ^e				
Illiterate	1	11.1	5	5.6
Literate and primary school graduate	5	55.6	51	57.3
High school or college graduate	3	33.3	24	27.0
University graduate	-	-	9	10.1
Profession ^f				
Housewife	8	88.9	57	64.0
Working	1	11.1	20	22.5
Retired	-	-	2	2.2
Non working young woman	-	-	8	9.0
Student	-	-	2	2.2
Unemployed	-	-	-	-
Economic status ^g				
Low	2	22.2	14	15.7
Medium	5	55.6	68	76.4
Good	2	22.2	7	7.9
History of physical illness ^h				
Yes	2	22.2	19	21.3
No	7	79.8	70	78.7

^at = 1.11, P = 0.267

^bt = 0.80, P = 0.421

^c χ^2 = 0.62, P = 0.429

^d χ^2 = 2.23, P = 0.328

^e χ^2 = 1.43, P = 0.697

^f χ^2 = 2.46, P = 0.651

^g χ^2 = 2.52, P = 0.283

^h χ^2 = 0.01, P = 0.951

years), social phobia (23.6 $\pm$ 11.8 years), and OCD (25.8 $\pm$ 10.0 years) was at a younger age than GAD (Table IV).

The most frequent symptom in GAD patients

was restlessness (98%) and being easily fatigued (96.9%; –irritability (90.8%), difficulty concentrating, (90.8%), hypervigilance (85.7%), muscle tension (81.6%), trembling (75.5%), sweating

Table IV. The Mean Age of Onset of GAD and Additional Depressive and Other Anxiety Disorders in GAD Outpatients.

Psychiatric disorder	Age of onset	
	(mean $\pm$ SD)	Min.-Max.
GAD	32.0 $\pm$ 10.0	14–55
Major depression	35.6 $\pm$ 10.8	17–60
Dysthymic disorder	34.7 $\pm$ 10.0	17–50
OCD	25.8 $\pm$ 10.0	13–41
Post traumatic stress disorder	41.5 $\pm$ 0.7	41–42
Panic disorder	37.5 $\pm$ 9.6	21–49
Social phobia	23.6 $\pm$ 11.8	7–45
Specific phobia	23.1 $\pm$ 12.0	9–45

(74.5%), sleep disturbance (72.4%), palpitations (68.4%), and dry mouth (64.3%) were the other frequently seen symptoms.

DISCUSSION

The findings of our study showed that 10.3% of 950 consecutive patients who presented to a university hospital psychiatric outpatient clinic during a 4-month period had GAD. There are few studies on the prevalence of GAD in psychiatric patients. The prevalence of GAD in psychiatric outpatients was reported to be 5.6% by Garyfallos et al. (1999), 23% by Lepine et al. (1989), and 15% by Rouillon et al. Saxena et al. (1988) found GAD in 11.45% of the patients who presented to psychiatric outpatient clinic with physical symptoms. However, in these studies, GAD rates were determined according to DSM-III-R diagnostic criteria, and structured interviews, such as CIDI, were not used.

Socio-demographic characteristics:

Many studies found that GAD is twice as prevalent in women as in men (Keller et al., 2002; Wittchen et al., 1994; Wittchen and Hoyer, 2001). The prevalence rate of 12.8% in women and 6% in men found in our study supports these findings.

It was reported that GAD generally starts in the late 20s, and that its severity increases with age and is more prevalent in the elderly (Wittchen et al., 1994; Carter et al., 2001; Kessler et al., 2001; Wittchen, 2002). The mean age of our study group

was 35.3 $\pm$ 11.4 years, whereas it was 37.7 $\pm$ 10.0 years for GAD patients. The mean age of onset of GAD was 32.0 $\pm$ 10.0 years. Our findings therefore support previous findings that this disorder is more prevalent among middle-aged individuals. Field studies show that GAD is more prevalent in divorced individuals, widows, and individuals who live alone (Wittchen et al., 1994). In our study, GAD was significantly higher in married individuals when compared to singles. The majority of married individuals in our study with GAD were housewives. Different from previous field studies, the ratio of housewives was high in our sample; therefore, the high prevalence of GAD in housewives was clearly seen. As the number of widows and divorcees were small in our sample, this may have impacted the findings. Wittchen et al. (1994) also described unemployment and being a housewife as risk factors. Some researchers have suggested that since the percentage of housewives in the overall GAD patient group doesn't exceed 25%, GAD is not a disorder that is unique to housewives (Wittchen and Hoyer, 2001). When the finding that 2/3 of the patients in our study with GAD were housewives is considered, it can be suggested that the prevalence of GAD is high among housewives.

In addition, GAD being more prevalent in housewives is in line with the finding that they have more psychological problems than married women who work (Çilli et al., 1997). The significantly higher rate of GAD we observed in non-

working women can be explained in the same way. Housewives taking on more responsibility for children and housework than their husbands do, and the idea that divorce is not acceptable despite problematic relationships might be the underlying reasons for the prevalence GAD.

Field studies reported that there is no significant relationship between education level and GAD, and that GAD is more prevalent in low socio-economic status individuals (Wittchen et al., 1994; Hidalgo and Davidson, 2001). GAD patients with low socio-economic status were also reported to have a poor quality of life (Jones et al., 2001). Some researchers proposed that sociodemographic variables, except gender, are not factors that contribute to GAD (Kessler et al., 2001). In our study, GAD was not related to income level, but was related to education level.

Previous research showed that GAD is more prevalent in individuals with medical problems (Hidalgo and Davidson, 2001). Horfield et al. (1994) found a prevalence rate of 29% in patients who presented to a hospital outpatient clinic with any complaint. We found a significant relationship between physical complaints and GAD, but comorbidity of GAD with physical disorders was not examined in detail.

GAD and additional diagnoses

Studies have shown that axis I disorders, especially mood disorders and other anxiety disorders, are frequently seen with GAD (Hidalgo and Davidson, 2001). Brawman-Mintzer et al. (1993) found that 74% of GAD patients had a lifetime diagnosis of another psychiatric disorder and, similar to our findings, they reported an additional diagnosis in 37.2% of the study's patients, 2 additional diagnoses in 20% of the patients, and 3 or more in 17%. Carter et al. (2001) reported that the frequency of one-year comorbid psychiatric disorders was 93.1%. In other studies, the rates of current and lifetime comorbid diagnoses were reported to be 65%-66.3% and 78%-90.4%, respectively (Garyfallos et al., 1999; Wittchen et al., 1994). The majority of the GAD patients (90.8%) in the present study had an additional depressive or anxiety disorder diagnosis. Previous studies have reported a significant increase in help-seeking behavior when GAD is comorbid with depressive and anxiety disorders (Kessler et al., 2000). High rates of additional diagnoses in our study could be due to this condition.

In the present study, we found that in 34.7% of the patients, the onset of GAD occurred before a comorbid anxiety disorder, in 73.5%, of the patients GAD's onset was before a comorbid depressive disorder, social phobia, whereas the onset of simple phobia and OCD was earlier when compared to GAD. Our findings are compatible with other reports in the literature that social phobia and specific phobia start earlier than GAD, that dysthymic disorder, major depression, and panic disorder comorbid diagnoses follow the onset of GAD (Garyfallos et al., 1999; Brawman-Mintzer et al., 1993), and that depressive disorders develop secondary to GAD in 50% of the cases (Carter et al., 2001; Fava et al., 2000). On the other hand, in our study, the age of onset of major depression, panic disorder, phobic disorders, and PTSD comorbid diagnoses were found to be later than the age of onset reported in the related literature (Burke et al., 1990; Brawman-Mintzer et al., 1993; Garyfallos et al., 1999).

GAD and depressive disorders

Garyfallos et al. (1999) reported lifetime additional diagnosis rates of any mood disorder and major depression secondary to GAD as 51% and 23%, respectively. Carter et al. (2001) found the one-year rates of the same additional diagnoses to be 0.6% and 59%, respectively. In the NCS study, major depression was comorbid in 62.4% of the cases (Wittchen et al., 1994). The rates of any depressive disorder (84.7%) and major depression (83.7%) found in our study were higher than the rates in previous studies. This finding implies that in our study population problems became more visible, especially when major depression was comorbid, and this increased help-seeking behavior.

As a result of the increase of the duration of symptoms criteria for GAD to 6 months in DSM-III-R, it was observed that there is a diagnostic overlapping of major depression and GAD, and the majority of the patients diagnosed with depression also meet GAD criteria. Although this situation raises suspicions in terms of diagnosis, it was found that anxiety symptoms that occur during depressive episodes are symptoms of depression rather than a distinct anxiety disorder (Breslau and Davis, 1985; Coryell et al., 1992). Despite close interactions between GAD and depression, researchers believe that these are 2 separate diagnoses. While symptoms such as autonomic hyperactivity, muscle tension, tension pains, and agitation are related to GAD, loss of interest, apathy, retardation,

hopelessness, and withdrawal are more characteristic of depression. In addition, fatigue, dysphoria, irritability, and sleep disorder are visible in both disorders. Patients who have a comorbid depression secondary to GAD display more severe symptoms and disturbances in social functioning. (Piccinelli, 1998).

Dysthymic disorder is another frequently seen depressive disorder in GAD patients. Current, one-year and lifetime comorbidity of dysthymic disorder with GAD was reported to be 21%-22%, 36.2% and 21-39.5%, in the several studies, respectively (Wittchen et al., 1994; Garyfallos et al., 1999; Carter et al., 2001). The rate of 3.1% found in our study is very low when compared to other studies. Thirty patients (30.6%) were diagnosed with major depression although they had met the criteria for both dysthymia and major depression. This can be explained by the higher rate of major depression findings in our study in comparison to other studies in the literature.

GAD and other anxiety disorders

In our study, we found that other anxiety disorders accompanied GAD in 56.1% of the patients. This percentage is higher than reported by Garyfallos et al. (1999) in psychiatric outpatients (31%), and nearly the same as the percentage reported by Carter et al. (2001) in the general population (55.9%).

Similar to our finding (30.6%), the comorbidity of social phobia and GAD in field studies was 28.9% one-year (Carter et al., 2001) and 34.4% lifetime (Wittchen et al., 1994). Garyfallos et al. (1999) reported that the lifetime prevalence of this additional diagnosis was 14%, and this low percentage might be due to negative effects of social phobia in help-seeking behavior of GAD patients. Our findings do not support this idea.

The comorbidity of panic disorder and GAD in previous studies was 21.5% (yearly) (Carter et al., 2001) and 23.5%-27% lifetime (Wittchen et al., 1994; Garyfallos et al., 1999). This ratio was found to be lower in our study, 8.2%. Some researchers suggested that GAD represents the prodromal phase of panic disorder (Garvey et al., 1988). Fava et al. (1992) demonstrated the existence of generalized anxiety among prodromal symptoms in panic disorder, and the persistence of GAD symptoms after panic episodes (Katon et al., 1987; Hoehn-Saric, 1982) supports this hypothesis. The low percentage of additional panic disorder diagnoses in

our study suggests that psychiatric presentation of GAD patients with panic disorder are fewer than in other countries.

The percentage of additional OCD diagnoses in our study (19%) was higher than that of patients who presented to an outpatient clinic (6%) (Garyfallos et al., 1999) and in the general population (10%) (Carter et al., 2001). When the fact that the 12-month prevalence rate of OCD (3.0%) in Konya where the present study was conducted (Çilli et al. 2004), was higher than in other countries (1.0%-1.6%) (Kessler et al., 2005; Karno et al., 1988) is considered, it can be hypothesized that this difference might reflect a higher rate of additional OCD diagnoses. Although the diagnostic criteria of other anxiety disorders were only recently defined, OCD had always been defined clearly, and researchers compared various characteristics of OCD with GAD. The relationship between OCD and GAD was attributed to genetic, psychopathological, and clinical characteristics. The prevalence of GAD was reported to be higher in the relatives of OCD patients compared to healthy controls (Black et al., 1995). The similar characteristics of worrying in GAD and obsessional symptoms in OCD have been emphasized. Both symptoms are repetitive, hard to control, and both are oriented towards a coming threat. It was suggested that GAD represents a cognitive variance of obsessional checking. (Tallis and De Silva, 1992). In a study, compulsive controlling behavior in GAD patients was found to be higher than expected and it was concluded that there was a significant relationship between compulsive behavior (especially controlling behavior) and worrying, which is the predominant characteristic of GAD (Schut et al., 2001).

The main limitations of this study are that it was conducted in a university hospital, recruited outpatients, lacked a control group for the comparison of additional diagnoses, it didn't assess additional diagnoses other than depressive and anxiety disorders, did not include some sociodemographic variables, such as stress factors and quality of life, and was limited to the assessment of comorbidity of GAD and medical disorders.

In conclusion, GAD was relatively common in patients who presented to a university psychiatry outpatient clinic and displayed a high comorbidity with depressive and anxiety disorders. In addition, the high percentage of additional diagnoses may lead to the under-recognition and under-treatment of GAD in clinical practice.

REFERENCES

- Black DW, Goldstein RB, Noyes R Jr et al. (1995) Psychiatric disorders in relatives of probands with obsessive-compulsive disorder and comorbid major depression or generalized anxiety disorder. *Psychiatr Genet*, 5: 37-41.
- Brawman-Mintzer O, Lydiard RB, Emmanuel N et al.(1993) Psychiatric comorbidity in patients with generalized anxiety disorder. *Am J Psychiatry*, 150: 1216-18.
- Breslau N, Davis GC (1985) DSM-III generalized anxiety disorder; an empirical investigation of more stringent criteria. *Psychiatry Res*, 14: 231-38.
- Burke KC, Burke JD, Regier DA et al.(1990) Age at onset of selected mental disorders in five community populations. *Arch Gen Psychiatry*, 47: 511-18.
- Carter RM, Wittchen HU, Pfister H et al.(2001) One-year prevalence of subthreshold and threshold DSM-IV generalized anxiety disorder in a nationally representative sample. *Depress Anxiety*, 13: 78-88.
- Coryell W, Endicott J, Winokur G (1992) Anxiety syndromes as epiphenomena of primary major depression: outcome and familial psychopathology. *Am J Psychiatry*, 149: 100-07.
- Çilli AS, Kaya N, Bodur S et al.(1997) Çalışan ve Ev kadınlarında psikolojik belirtilerin karşılaştırılması. 33. National psychiatry Congress Abstract Book, Antalya, pp. 27.
- Çilli AS, Telcioğlu M, Aşkın R et al.(2004) Twelve-month prevalence of obsessive-compulsive disorder in Konya, Turkey. *Compr Psychiatry*, 45: 367-74.
- Erol N, Kılıç C, Ulusoy M et al. Türkiye'nin ruh sağlığı profili raporu. Ankara, T. C. Sağlık Bakanlığı Temel Sağlık Hizmetleri Genel Müdürlüğü Yayınları, 1998.
- Faravelli C, Degl'Innocenti BG, Giardinelli L (1989) Epidemiology of anxiety disorders in Florence. *Acta Psychiatr Scand*, 79: 308-12.
- Fava GA, Grani S, Rafanelli C et al.(1992) Prodromal symptoms in panic disorder with agoraphobia: a replication study. *J Affect Disord*, 26: 85-88.
- Fava M, Rankin MA, Wright EC et al.(2000) Anxiety disorders in major depression. *Compr Psychiatry*, 41: 97-102.
- Garvey MJ, Cook B, Nages JR (1988) The occurrence of a prodrome of generalized anxiety in panic disorder. *Compr Psychiatry*, 29: 445-49.
- Garyfallos G, Adamopoulou A, Karastergiou A et al.(1999) Psychiatric comorbidity in Greek patients with generalized anxiety disorder. *Psychopathology*, 32: 308-18.
- Hidalgo RB, Davidson JR (2001) Generalized anxiety disorder: An important clinical concern. *Med Clin North Am*, 85: 691-710.
- Hoehn-Saric R (1982) Comparison of generalized anxiety disorder with panic disorder patients. *Psychopharmacol Bull*, 18: 104-08.
- Horfield M, Katen W, Mroojale N (1994) Anxiety and depression in on outpatient clinic in Lesotho, Africa. *Int J Psychiatry Med*, 24: 179-88.
- Jones GN, Ames SC, Jeffries SK et al.(2001) Utilization of medical services and quality of life among low-inc patients with generalized anxiety disorder attending primary care clinics. *Int J Psychiatry Med*, 31: 183-98.
- Karno M, Golding JM, Sorenson SB, et al.(1988) The epidemiology of obsessive-compulsive disorder in five US communities. *Arch Gen Psychiatry*, 45: 1094-99.
- Katon W, Vitaliano PP, Anderson K et al.(1987) Panic disorder residual symptoms after the acute attack abate. *Compr Psychiatry*, 28: 151-58.
- Keller MB (2002) The long-term clinical course of generalized anxiety disorder. *J Clin Psychiatry*, 63(Suppl.8): 11-16.
- Kessler RC, McGonagle KA, Zhao S et al.(1994) Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Arch Gen Psychiatry*, 51: 8-19.
- Kessler RC, Keller MB, Wittchen HU (2001) The epidemiology of generalized anxiety disorder. *Psychiatr Clin North Am*, 24: 19-39.
- Kessler RC (2000) The epidemiology of pure and comorbid generalized anxiety disorder: a Review and evaluation of recent research. *Acta Psychiatr Scand*, (Suppl.406): 7-13.
- Kessler RC, Chiu WT, Demler O et al.(2005) Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in The National Comorbidity Survey Replication. *Arch Gen Psychiatry*, 62: 617-27.
- Kılıç C, Göğüş A (1997) Uluslararası birleşik tanı görüşmesi, 2.1 (1997) Hacettepe University Medical Facults Psychaitry Department World Health organization Collaboration, publication no:2, Ankara.
- Kırpınar O, Özer H, Coşkun O et al.(1997) Erzurum' daki üniversite öğrencilerinde CIDI/DSM-III-R ruhsal bozuklukların yaşam boyu ve 12 aylık yaygınlığı. *3P Dergisi*, 5: 253-65.
- Lepine JP, Pariente P, Bovlenger TP et al.(1989) Anxiety disorders in a French general psychiatric out patient sample. Comparison between DSM-III and DSM-III-R criteria. *Soc Psychiatry Psychiatr Epidemiol*, 24: 301-08.
- Piccinelli M (1998) Comorbidity of depression and generalized anxiety is there any distinct boudary? *Curr Opin Psychiatry*, 11: 57-60.
- Rezaki M (1995) Bir sağlık ocağına başvuran hastalarda depresyon. *Türk Psikiyatri Derg*, 5: 6: 13-20.
- Rouillon F (1992) Epimediologic survey of psychiatric disorders in specialized consultation. *Encephale*, 18: 525-35.
- Saxena S, Nepal MK, Mohan D (1988) DSM-III axis I diagnoses on Indian psychiatric patients with somatic symptoms. *Am J Psychiatry*, 145: 1023-24.
- Schut AJ, Castonguay LG, Borkovec TD (2001) Compulsive checking behaviors in generalized anxiety disorder. *J Clin Psychol*, 57: 705-15.
- Stahl SM (2000) Temel psikofarmakoloji. Nörobilimsel temeli ve pratik uygulamaları. (Çev. Ed. B Taneli, Y Taneli). Yelkovan Yayıncılık, İstanbul, 2003.
- Tallis F, de Silva P (1992) Worry and obsessional symptoms: a correlational analysis. *Behav Res Therapy*, 30: 103-05.
- Wittchen HU, Zhao S, Kessler RC et al.(1994) DSM-III-R generalized anxiety disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*, 51: 355-64.
- Wittchen HU, Hoyer J (2001) Generalized anxiety disorder: nature and course. *J Clin Psychiatry*, 62(Suppl. 11): 15-19.
- Wittchen HU, Robins LN, Cottler LB et al.(1991) Cross cultural feasibility reliability and sources of variance of the CIDI. *Br J Psychiatry*, 159: 653-65.
- Wittchen HU (2002) generalized anxiety disorder: prevalence, burden and cost to society. *Depress Anxiety*, 16: 162-71.
- World Health Organization (1997) Composite International Diagnostic Interview (CIDI) 2.1. Geneva.
- Zimmerman M, Chelminski I (2003) Clinician recognition of anxiety disorders in depressed outpatients. *J Psychiatr Res*, 37: 325-33.