Received: 28 Nov 2023 | **Accepted:** 13 Dec 2023 **Genel Tıp Derg. Volume** 33/**Issue** 6 (December), 796-805
DOI: 10.54005/geneltip.1392240

ORIGINAL ARTICLE

Exploring Overlooked Anxiety Disorders: A Study on the Prevalence of Adult Separation Anxiety Disorder and Specific Phobia in the General Population

Göz Ardı Edilen Anksiyete Bozukluklarını Keşfetmek: Genel Toplumda Yetişkin Ayrılma Kaygısı Bozukluğu ve Özgül Fobi Yaygınlığı Üzerine Bir Araştırma

[1]Fatih Ekici, [2]Gizem Karaoğlan, [3]Ali Kandeğer, [4]Lütfi Saltuk Demir, [3]Özkan Güler

[1]Department of Psychiatry, Konya City Hospital, Konya, Türkiye
[2]Department of Psychiatry, Nevşehir State Hospital, Nevşehir, Türkiye
[3]Department of Psychiatry, Faculty of Medicine, Selçuk University, Konya, Türkiye
[4]Department of Public Health, Faculty of Medicine, Necmettin Erbakan University, Konya, Türkiye

Correspondence

Fatih Ekici, Department of Psychiatry, Konya City Hospital, Konya, 42020, Türkiye

E-Mail: ekicifatih.fe@gmail.com

How to cite ?

Ekici F, Karaoğlan G, Kandeğer A, Demir LS, Güler Ö. Exploring Overlooked Anxiety Disorders: A Study on the Prevalence of Adult Separation Anxiety Disorder and Specific Phobia in the General Population. Genel Tıp Derg. 2023;33(6):796-805.

ABSTRACT

Objective: The current study aimed to investigate the prevalence of adult separation anxiety disorder (ASAD) and specific phobia in the general population along with identifying the factors associated with these two disorders.
Material and Method: The study was carried out in the Selçuklu district, encompassing 28 of the 34 family health centers selected through a simple random sampling method. The study sample included 1,218 individuals over 18 years old, chosen using a systematic sampling approach by skipping one resident from each neighborhood covered by the family health unit. After collecting the sociodemographic data, face-to-face diagnostic interviews were performed using the Structured Clinical Interviews for Separation Anxiety Symptoms (SCI-SAS) for ASAD and the Structured Clinical Interview for DSM-5 (SCID-5) for specific phobia assessment.
Results: The study revealed that the lifetime prevalence of ASAD was 5.9%, with a point prevalence of 1.5% while the lifetime prevalence of specific phobia was 11.3%. The application rates for the treatment of both disorders were very low and clinicians demonstrated limited recognition of ASAD. ASAD was correlated with female gender, low income, childhood traumatic experiences, migraine presence and family history of serious illness. On the other hand, specific phobia was associated with female gender and family history of psychiatric disease.
Conclusion: Despite the high prevalence of both disorders, the alarming rates of clinical recognition and treatment underscore the need to develop health policies and awareness programs aimed at promoting early diagnosis and treatment.

Keywords: Adult, prevalence, separation anxiety disorder, specific phobia.

ÖZ

Amaç: Bu çalışma, genel nüfusta yetişkinlerdeki ayrılma anksiyete bozukluğu (YAKB) ve özgül fobi yaygınlığını araştırmayı ve bu iki bozuklukla ilişkili faktörleri belirlemeyi amaçlamaktadır.
Gereç ve Yöntemler: Çalışma, Selçuklu ilçesinde bulunan 34 aile sağlığı merkezinden basit rastgele örnekleme yöntemi ile belirlenen 28'inde gerçekleştirilmiştir. Araştırmanın örneklemini aile sağlığı biriminin kapsadığı mahallede ikamet edenler arasından sistematik örnekleme yöntemiyle birer kişi atlayarak seçilen 18 yaş üstü 1218 kişi oluşturmaktadır. Araştırmada sosyodemografik veri formu görüşmeci tarafından uygulandıktan sonra YAKB için Ayrılma Anksiyetesi Belirtileri Klinik Görüşmesi (AAB-YKG), Özgül fobi için DSM-5 Bozuklukları Yapılandırılmış Klinik Görüşmesi (SCID-5) ile yüz yüze tanı koydurucu görüşmeler yapılmıştır.
Bulgular: Çalışma, YAKB yaşam boyu yaygınlığının %5.9, nokta yaygınlığının ise %1.5 olduğunu ortaya koyarken, özgül fobi yaşam boyu yaygınlığının %11.3 olduğunu gösterdi. Her iki bozuklukta tedaviye başvuru oranları oldukça düşük olup klinisyenler YAKB'yi sınırlı düzeyde tanıyabildiler. YAKB; kadın cinsiyet, düşük gelir düzeyi, çocukluk dönemi travmatik deneyim varlığı, migren varlığı ve ailede ciddi hastalık öyküsü ile ilişkili bulundu. Diğer yandan, özgül fobi, kadın cinsiyeti ve ailede psikiyatrik hastalık öyküsü ile ilişkilendirilmiştir.
Sonuç: Her iki bozukluğun yüksek yaygınlıklara rağmen kliniklerde düşük tanınma ve tedavi edilme oranları, erken tanı ve tedaviyi teşvik etmeyi amaçlayan sağlık politikalarına ve farkındalık programlarına olan ihtiyacı vurgulamaktadır.

Anahtar Sözcükler: Yetişkin, ayrılma anksiyetesi bozukluğu, özgül fobi, yaygınlık,

Introduction

Although separation anxiety disorder (SAD) has been traditionally considered a diagnosis specific to childhood, studies conducted in the last 30 years have shown that the disorder that starts during childhood can extend into adulthood or even manifest for the first time during adulthood (1-4). Although the Diagnostic and Statistical Manual of Mental Disorders Fifth Version (DSM-5) has facilitated the diagnosis of adult separation anxiety disorder (ASAD) (1), this particular anxiety disorder remains the least researched among adults (5). In addition to the lack of research, patients are still rarely diagnosed with ASAD in clinics. Nevertheless, two large epidemiological studies found unexpectedly high prevalence rates of 4.8% and 6.6% for ASAD (6, 7). In addition, studies conducted with patients admitted to clinics reported remarkably high prevalence rates ranging from 20% to 70% (8-12). These epidemiological data underscore the significance of

Peer-Review: Double anonymized - Two External
Plagiarism Checks: Yes - iThenticate
Complaints: geneltip@selcuk.edu.tr

Selcuk University Press
Genel Tıp Dergisi | e-ISSN: 2602-3741
https://dergipark.org.tr/tr/pub/geneltip
https://yayinevi.selcuk.edu.tr/

ASAD while also highlighting that the disorder lacks adequate recognition and leads to interruptions in treatment within clinical settings.

Another anxiety disorder overlooked in studies and clinical settings is specific phobia. Although it is among the most common mental illnesses with lifetime prevalence rates of up to 15%, patients with specific phobia are not encountered at the same rates in clinics (13, 14). Avoidance of the specific stimulus alleviates the individual's anxiety, but the disorder impairs overall functioning in life (15). Compared to other mental disorders, extremely high comorbidity rates have been reported in specific phobia (16-18). Although several researches point out the heterogeneous nature of the specific phobia, they are still insufficient to define the distinguishing features of the subtypes. In addition, the onset of the disorder at a very early age and its chronic course hold crucial clinical and epidemiological significance (19, 20).

ASAD and specific phobia remain two anxiety disorder diagnoses that continue to receive relatively little attention and research in clinical settings. Except for a few Western epidemiological studies, there is a lack of research on ASAD (6, 7). As far as we know, no study has investigated the prevalence of SAD in the general population of Turkiye. Similarly, in the case of specific phobia, most epidemiological studies originate from Western and high-income countries (14), which limits the generalizability of the findings (21, 22). The prevalence rates for both disorders reported in studies conducted in Western countries are markedly high. The significant variation in prevalence rates of SAD and specific phobia across different countries indicates that social and cultural factors play a crucial role (6, 7, 14, 15).

Understanding the factors that cause epidemiological differences may contribute to our understanding of the nature of both disorders and design studies that prevent the development of these disorders. Identifying the recognition and treatment rates of these disorders and the factors associated with these two conditions may enable the development of health policies for early diagnosis and treatment. Given these considerations, we aimed to investigate the lifetime prevalence of ASAD and specific phobia in the general population and related factors in the current study.

Methods

Regional Characteristics

Konya, the province where the study was conducted, has hosted many civilizations from the prehistoric age to the present and is the largest city in Turkiye in terms of surface area. According to the results of the 2020 census, Konya province is considered the seventh most populous city in Turkiye with a population of 2,250,020.

Selçuklu district, named after the Anatolian Seljuk State, which made Konya its capital, maintains its feature of being the largest district of Konya with a population of 663,280 and boasts a notable level of development. Although Selçuklu district contains a rural population, it is predominantly urbanized. The district experiences a considerable rate of construction and development and continues to witness immigration, especially from rural areas within the city.

Research Universe and Sampling Method

The population of this cross-sectional study consisted of people aged 18 years and older living in the Selçuklu district. To represent the neighborhoods in the Selçuklu district, 28 of 34 family health centers were selected as clusters using a simple random sampling method. Among those who visited the family health centers, individuals over 18, without agitation, without severe psychotic symptoms, and those possessing the cognitive ability to participate in interviews were included in the study using a systematic sampling approach, skipping one person after each inclusion. Those who did not reside in the neighborhood where the sample was selected but were registered at that family health center were excluded from the study.

Sample Size

The study's sample size was initially calculated using G*Power v.3.1.9.7 software, resulting in 599 individuals. This calculation was based on assumed incidence rates of 7% for ASAD and 11% for specific phobia, with an expected detection rate of 8% for specific phobia, a 5% error margin, and 80% power.

Considering the design effect of 2 for the sample, the final sample size was adjusted to 1,198 individuals and ultimately a total of 1,218 individuals were included in the study. The distribution of the sample size among family health centers was proportionate to each center's total population.

Research Site and Implementation

This study was carried out between February 01, 2021 and August 01, 2021, across 28 family health centers located in Selçuklu district. Before the study, necessary permissions were obtained from the Konya Governorship Provincial Health Directorate (number: 86737044-806.01.03). This study was approved by the Ethics Committee of Selcuk University Faculty of Medicine (Date: January 27, 2021, No: 2021/2). All of the study procedures abided by the Declaration of Helsinki, as well as local laws and regulations. The responsible physicians at the family health centers were informed, and the physical facilities were evaluated to ensure appropriate conditions for conducting the interviews. Interviews were conducted on a one-on-one basis, with participants having private sessions. The duration of interviews ranged from three to seven days, depending on the number of units in each family health center.

Before the interviews, participants were verbally informed about the study's scope, and written informed consent was obtained from those who agreed to participate. In the initial stage of the interview, similar to a clinical interview in an outpatient clinic, the clinician completed a sociodemographic

data form. During the second stage, researchers utilized a form they developed to assess childhood and adult life events, as well as childhood traumas. Finally, a diagnostic interview was conducted by the interviewers in the third stage.

The interviews were conducted by two experienced clinicians working in the Department of Psychiatry at the Faculty of Medicine of Selçuk University.

Data Collection Tools

Sociodemographic Data Form

This form was developed by us to gather information about the sociodemographic characteristics of the participants. Comprising two sections, it was completed by the researchers and aimed to investigate the participant's gender, age, educational level, occupational status, living conditions, employment status, socioeconomic level, marital status, medical conditions, drug usage, psychiatric diagnoses, family history of psychiatric illnesses, and any history of suicide attempts. To minimize recall bias while inquiring about other medical conditions, the data of the medical record system was cross-referenced to the patients' statements.

The second section of the sociodemographic data form focused on investigating negative life experiences during childhood and adulthood. In this section, the loss of a parent during childhood, the loss of loved ones in childhood and adulthood, the history of serious illness among family members, the presence of serious family problems during childhood, and any history of childhood trauma were investigated.

Structured Clinical Interview for DSM-5 Disorders (SCID-5)

The research utilized a semi-structured interview guide designed for DSM-5 diagnoses, which comprises ten modules encompassing detailed diagnostic criteria across 32 diagnostic categories and investigative questions within 17 diagnostic categories. The interview guide applies to individuals aged 18 years old and above without severe cognitive deficits, severe psychotic symptoms, or agitation. The average duration of the interview ranges from 40 to 60 minutes and is administered by the interviewer. In a prior study, the Kappa coefficient was computed to ensure diagnostic accuracy, producing values ranging from 0.65 to 1.00, all of which hold statistical significance and now serve as established reference benchmarks (23). The SCID-5 scanning part was utilized for diagnosing specific phobia, while a diagnostic interview was conducted to assess past and current symptoms. Additionally, the G9 and G10 sections were employed to investigate the history of traumatic experiences during childhood.

Structured Clinical Interview for Separation Anxiety Symptoms (SCI-SAS)

The SCI-SAS, developed by Cyranowski et al., was divided into two parts, where 8 criteria from DSM-4 were adapted and updated to provide diagnoses for adults. The first part facilitates retrospective childhood diagnoses, while the second part inquires about the current adult diagnosis (3). Diriöz et al. conducted the Turkish validity and reliability study, revealing moderate inter-item consistency for the interview (Cronbach's alpha value of 0.56 for the childhood part and 0.57 for the adult part) and demonstrating inter-rater consistency (Cohen's kappa ranging between 0.622 and 0.946; $p<0.001$ for all) (24). For our study, the diagnostic period for adults adhered to the valid DSM-5 standard of 6 months. The diagnostic interview we used was in good agreement with the DSM-5 criteria.

Statistical Analysis

All data were analyzed using the SPSS v.27 software. Descriptive data were presented using frequency and percentage distribution for categorical data and mean ± standard deviation for numerical data. The analysis of categorical data utilized the Chi-square (χ^2) test, while for numerical data, the T-test was employed for normally distributed data in independent groups, and the Mann-Whitney U test was used for non-normally distributed groups.

The study utilized the forward LR method of logistic regression on the values obtained from pairwise comparisons to identify the influential factors in ASAD and specific phobia. A significance level of $p<0.05$ was adopted for all analyses.

Results

ASAD - Prevalence and Age of Onset

The estimated lifetime prevalence of ASAD was 5.9% (7.2% in females, 4.1% in males). The point prevalence was 1.5%, which was considerably lower than the lifetime prevalence. The mean age at the onset of the diagnosis of ASAD was 18.21±11.86, and the median was 14.5. The disorder started in adulthood in 43.1% (n=31) of those diagnosed with ASAD, and 90% of those diagnosed with the disorder did not receive the diagnosis by their early 30s (Figure 1).

ASAD - Sociodemographic Data

Demographic variables of the participants ASAD with/ without and statistics for variables are indicated in Table 1.

ASAD - Medical History

Among individuals diagnosed with ASAD, 52.8% (n=38) had sought assistance from a psychiatry clinic at some point in their lives. However, a small percentage (12.5%) of the applicants had consulted a psychiatrist during their childhood. The rate of referral to psychiatry due to ASAD symptoms was very low (9.7%). Among those who sought psychiatric help, only one person had been diagnosed with SAD in childhood, and the diagnosis was made by a child psychiatrist.

Regarding individuals diagnosed with ASAD, 48.6% (n=35) had at least one other psychiatric illness. Among those with a history of diagnosis, anxiety disorder accounted for 23.6% (n=17), while mood disorder accounted for 20.8% (n=15). The age of onset

Table 1. Sociodemographic characteristics and childhood adversities of participants with and without ASAD diagnosis.

		Participants with ASAD (n=72 5.9%)		Participants without ASAD (n=1146 94.1%)		t-x²	p
Age[a]	(Mean, SD)	32.69	13.41	41.64	15.43	4.80	**0.001**
Gender[b]							
Female	(n, %)	51	7.2	655	92.8	5.20	**0.023**
Male		21	4.1	491	95.9		
Education[b]							
Elementary school		26	4.5	557	95.5		
High school	(n, %)	23	6.5	330	93.5	4.99	0.082
College/University		23	10.4	259	89.6		
Total years of education[a]	(Mean, SD)	10.82	4.30	9.52	4.74	-2.47	**0.016**
Employment status [b]/							
Employee		24	5.2	439	94.8		
Unemployed/Retiree	(n, %)	15	6.6	211	93.4	20.2	**0.001**
Homemaker		19	4.3	426	95.7		
Student		14	16.7	70	83.3		
Income level[b]							
Low		38	8.0	435	92.0		
Middle	(n, %)	20	4.4	436	95.6	6.33	**0.042**
High		14	4.8	275	95.2		
Marital status[b]							
Married		40	4.6	839	95.4		
Separated/widowed/divorced	(n, %)	9	7.8	107	92.2	11.40	**0.003**
Never married		23	10.3	200	89.7		
Comorbid psychiatric illness onset/age[a]	(Mean, SD)	25.44	12.21	32.92	13.44	3.10	**0.002**
Comorbid physical illness[b]	(n, %)	29	5.5	497	94.5	0.26	0.608
Suicide attempt[b]	(n, %)	8	14.8	46	85.2	6.46	**0.011**
Suicide attempt age[a]	(Mean, SD)	19.50	3.08	25.00	9.30	2.89	**0.009**
Parent loss in childhood[b]/death or divorce	(n, %)	16	10.6	135	89.4	9.63	**0.008**
Primary caregiver in infancy[b]/mother	(n, %)	64	5.8	1045	94.2	0.44	0.508
Prolonged[c] separation from mother[b]	(n, %)	8	10.4	69	89.6	2.96	0.126
Loss of loved one in childhood[b]	(n, %)	22	7.4	275	92.6	1.58	0.209
Loss of loved one in adulthood[b]	(n, %)	32	5.3	569	94.7	0.74	0.395
Serious accident in family members[b]	(n, %)	17	6.2	256	93.8	0.63	0.802
Serious illness in family members[b]	(n, %)	28	8.2	314	91.8	4.43	**0.035**
Childhood maladaptive family functioning[b]	(n, %)	37	9.3	362	90.7	12.05	**0.001**
Traumatic experience in childhood[b]	(n, %)	24	14.2	145	85.8	24.25	**0.001**

ASAD: adult separation anxiety disorder, SD: standard deviation. aindependent samples t-test, bx2 test, c= first 2 years of infancy. Significant p values are written in bold.

Table 2. Logistic regression model predicting adult separation anxiety disorder.

	B	S.E.	Wald	Sig.	Exp(B)	Lower	Upper
Age	-0.040	0.012	11.823	**0.001**	**0.961**	**0.939**	**0.983**
Gender	-0.900	0.313	8.282	**0.004**	**2.459**	**1.332**	**4.538**
Employment status	-0.878	0.387	5.158	**0.023**	**0.415**	**0.195**	**0.887**
Income rate	0.760	0.348	4.759	**0.029**	**2.137**	**1.080**	**4.229**
Serious illness in family members	0.846	0.285	9.050	**0.002**	**2.330**	**1.347**	**4.029**
Traumatic experience in childhood	0.858	0.285	9.050	**0.003**	**2.357**	**1.348**	**4.122**
Migraine	1.074	0.543	3.912	**0.048**	**2.926**	**1.010**	**8.478**

B: beta, SE: standard error, Sig: significance, Exp(B): exponent of B. The table presents the significant data that remains after applying the forward LR method.

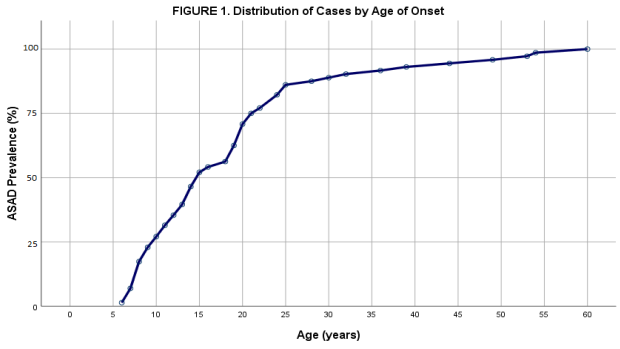

Fig. 1. Distribution of ASAD prevalence by age of onset.

Table 3. Sociodemographic characteristics of participants with and without specific phobia diagnosis.

		Participants with specific phobia (n=138 11.3%)		Participants without specific phobia (n= 1080 88.7%)		t- x^2	p
Age[a]	(Mean, SD)	37.82	13.14	41.53	15.69	3.05	0.003
Gender[b] Female Male	(n, %)	100 38	14.2 7.4	606 474	85.8 92.6	13.43	0.001
Education[b] Elementary school High school College/University	(n, %)	60 43 35	10.3 12.2 12.4	523 310 247	89.7 87.8 87.6	1.20	0.546
Total years of education[a]	(Mean, SD)	10.25	4.75	9.51	4.72	-1.71	0.087
Employment status[b] Employee Unemployed/ Retiree Homemaker Student	(n, %)	42 22 65 9	9.1 9.7 14.6 10.7	421 204 380 75	90.9 90.3 85.4 89.3	7.71	0.052
Income level[b] Low Middle High	(n, %)	65 41 32	13.7 9.0 11.1	408 415 257	86.3 91.0 88.9	5.24	0.073
Marital status[b] Married Separated/ widowed/ divorced Never married	(n, %)	111 5 22	12.6 4.3 9.9	768 111 201	87.4 95.7 90.1	7.64	0.022
Comorbid psychiatric illness onset/ age[a]	(Mean, SD)	29.44	10.88	32.51	13.79	1.60	0.114
Other physical illness[b]	(n, %)	57	10.8	469	89.2	0.22	0.636

SD: standard deviation. aindependent samples t-test, bx2 test. Significant p values are written in bold.

of psychiatric illness was significantly lower in those with a diagnosis of ASAD than in those without ASAD (t=3.099, p=0.002).

Approximately 11.1% (n=8) of those diagnosed with ASAD had a history of suicide attempts. All of those who attempted suicide had a history of additional psychiatric illnesses. The rate of suicide attempts was higher in those diagnosed with ASAD (χ^2=6.46, p=0.011), and the age of suicide attempts was lower (t=2.887, p=0.009). The prevalence of a history of suicide attempts was higher in those with a history of mood disorders among individuals diagnosed with ASAD (χ^2=4.97, p=0.026).

When evaluated in terms of other medical conditions, 34.7% (n=25) of those diagnosed with ASAD had at least one physical disease. ASAD was found to be more common in patients with migraine (χ^2=4.86, p=0.046). However, when examining other medical diseases, no significant differences were observed among the groups.

Table 4. Logistic regression model predicting specific phobia.

	B	S.E.	Wald	Sig.	Exp(B)	Lower	Upper
Age	-0.022	0.008	7.943	0.005	0.978	0.963	0.993
Gender	0.637	0.207	9.446	0.002	1.890	1.259	2.837
Marital status	0.653	0.296	4.877	0.027	1.921	1.076	3.431
Psychiatric illness in family members	0.605	0.202	9.001	0.003	1.832	1.234	2.721

B: beta, SE: standard error, Sig: significance, Exp(B): exponent of B. The table presents the significant data that remains after applying the forward LR method.

ASAD - Predictors

The study employed logistic regression with the forward LR method to identify the significant factors affecting ASAD. These factors were determined through pairwise comparisons of ASAD with parameters including age, gender, occupational status, income level, marital status, family history of psychiatric illness, intense familial problems in childhood, suicide attempt, childhood trauma, parent loss at an early age, presence of migraine, and family history of serious illness. The model's explanatory coefficient stood at 15.7%. ASAD was more prevalent among women, those with a low income, those who had at least one traumatic experience in childhood, those with a diagnosis of migraine, and those with a family history of serious illness, On the other hand, the disorder was less encountered among employed, housewives and retirees compared to those who did not work. Advanced age was associated with a reduced risk of ASAD (Table 2).

Specific phobia - Prevalence and Age of Onset

The lifetime prevalence of specific phobia meeting the DSM-5 diagnostic criteria, after the application of SCID-5, was 11.3% in the entire sample. Among the specific phobia subtypes, animal phobias were the most common, with a lifetime prevalence of 5% and a point prevalence of 4.8%. The lifetime and point prevalences for the other subtypes were as follows: 2.8% and 2.1% for the blood-injection-injury subtype, 2.9% and 2.7% for the natural environment subtype, and 3% and 2.5% for the situational subtype. Phobias related to other subtypes were reported at much lower rates, with a prevalence of 0.7% and 0.3%.

Among the variants of the subtypes, height phobia was the most common type with a lifetime prevalence of 2.5%, followed by dog phobia with a prevalence of 1.8%, cat phobia with a prevalence of 1.6%, and phobia of enclosed spaces with a prevalence of 1.1%.

Of all phobias, 89% had their onset before the age of 18. Among the specific phobia subtypes, animal phobias had the highest rate of onset before the age of 18 with 98.4%, while situational phobias had the lowest prevalence at 63.9%.

Specific phobia - Sociodemographic Data

Specific phobia was more common among women, with a lifetime prevalence of 14.2% compared to 7.4% among men. Animal phobia (χ^2=17.33, p=0.001) and situational phobia (χ^2=4.41, p=0.036) were more common in women while blood-injection-injury phobia (χ^2=0.652, p=0.419), natural environment phobia (χ^2=1.66, p=0.197), and other phobias (χ^2=0.21, p=0.647) did not demonstrate any significant difference between genders. Educational level (χ^2=1.20, p=0.546) and income level (χ^2=5.24, p=0.073) were not correlated with specific phobia. While the prevalence of specific phobia in unmarried (single, widowed, divorced, separated) or married (one or more marriages) individuals was similar, specific phobia was observed at significantly higher rates in the group with more than one marriage (χ^2=7.64, p=0.022) (Table 3).

Specific phobia - Medical History

The rate of seeking treatment for specific phobia was 6.8%. Individuals with specific phobia reported a history of admission to psychiatry clinics at similar rates compared to the general population (χ^2=0.32, p=0.570). Among those diagnosed with specific phobia, no one sought treatment specifically for natural environment phobia.

Specific phobia - Predictors

Logistic regression performed with the forward LR method evaluated the significance of parameters such as age, gender, occupational status, marital status, smoking, and the presence of psychiatric disease in the family. These factors were examined in pairwise comparisons to understand their impact on specific phobia. The model revealed an explanatory coefficient of 6.5%. Table 4 displays the factors associated with specific phobia.

Discussion

The initial aim of this study was to investigate the prevalence of ASAD and specific phobia and the factors associated with these two disorders. Our study has shown that both disorders are prevalent at high rates, yet they lack adequate recognition and treatment.

We found that the lifetime prevalence of ASAD was 5.9% and the point prevalence was 1.5%. These rates are consistent with the findings of two large studies investigating the prevalence of ASAD and support the evidence that ASAD is a more common disorder than anticipated (6, 7). In 90% of ASAD diagnoses, the disorder manifested before the age of 30, with a significant majority (43.1%) experiencing adult-onset disorder. The National Comorbidity Survey (NCS-R) also reported that the majority of ASAD diagnoses occurred by the age of 30, with approximately three-quarters of the cases being adult-onset (6). In the WHO World Mental Health Surveys, it was observed that adult onsets were more prevalent in low/low-middle-income countries compared to upper-middle-income countries (7). Although the studies report a close onset age, the limited and inconsistent information about the factors causing partial differences complicates interpretation. More importantly, retrospective screening of the age of onset leads to recall bias. Although we use graded questions to minimize recall bias, adults' early recall bias may persist, with some adults reporting an early onset with the belief that the onset should have been in childhood. Considering that most epidemiological studies, including ours, estimate the age of onset retrospectively, longitudinal studies are needed as the most reliable method to determine the age of onset.

As with other anxiety disorders, ASAD is more common in women (7, 25, 26). Consistent findings of twin studies suggesting more significant genetic transmission in females were thought to be one reason for this difference (27-30). It has been suggested that oxytocin, which plays a role in attachment, may be another etiological reason for the difference between genders (31, 32). Consistent with the findings of population-based studies, we also found that the female gender was associated with a 2.2-fold increased risk of ASAD. We want to underline that apart from potential biological factors, gender roles in the population may contribute to the observed prevalence difference among women. The presence of significant gender differences in the child-rearing tradition, especially in Eastern societies, and the traditional family structure that supports the dependent role of women (extremely controlling-protective approach to girls, loyalty to home and spouse, obedience) could be associated with the higher prevalence of ASAD in women.

Examining the sociodemographic findings, we observed a higher prevalence of ASAD among unemployed individuals, students or those with low income. Moreover, the disorder was more common among those who were divorced, living separately from their spouses, or had experienced multiple marriages. In further analyses, ASAD was associated with an approximately two-fold increase in low-income individuals. The National Comorbidity Study, one of the population-based epidemiological studies, indicated associations between ASAD and factors such as low educational level, unemployment and divorce (6). The WHO World Mental Health Survey, on the other hand, reported that being single in high-income countries was linked to the onset and persistence of ASAD (7). These findings suggest that ASAD is more common in sociodemographically disadvantaged groups. On the other hand, in our study, the prevalence of ASAD increased as the years of education increased, in contrast to the National Comorbidity Study. In a study conducted among university students who were separated from their families in the USA, the prevalence of ASAD was 21% (33). The existence of conditions requiring separation from home and attachment figures due to education (e.g. moving to another city for college) may be related to the high prevalence of the disorder in students, as well as high educational level. This interpretation is speculative but

may guide further studies investigating specific life events associated with ASAD.

Studies have highlighted the low rates of treatment admissions for ASAD symptoms and the high likelihood of clinicians overlooking the diagnosis, even when patients seek help during the same period (34). For instance, Manicavasagar et al. reported that approximately two-thirds of the participants diagnosed with ASAD had applied for treatment for other anxiety disorders and depression, but clinicians did not initiate any treatment specifically targeting ASAD (2). Another study investigating the presence of ASAD diagnosis in patients with panic disorder and generalized anxiety disorder emphasized that ASAD symptoms might be overshadowed by comorbid conditions and overlooked due to diagnostic systems' focus on childhood (8). In the current study, nearly half of the participants diagnosed with ASAD reported a history of seeking psychiatry clinic services for various reasons, with only 9.7% of them presenting symptoms specific to ASAD during the clinic visits. Intriguingly, among the participants diagnosed with ASAD, only one received the diagnosis from a child psychiatrist. The findings of our study, in line with the literature, show that the rates of admission to treatment and recognition of ASAD in clinical settings are quite low. The low rate of admission to treatment may be related to the cultural norms of our society that foster dependency. In line with these norms, families might accept and adapt to the symptoms, considering them as a normal part of life. On the other hand, negative feelings and perceived stigma associated with the nature of the symptoms may increase the tendency to hide the disease and subsequently reduce the likelihood of seeking treatment. In the past, SAD was primarily thought to be a childhood-specific diagnosis in diagnostic systems and psychiatrists were thought to have inadequately diagnosed ASAD due to diagnostic criteria primarily designed to address childhood symptoms. However, even in the current study, where diagnostic criteria allow for ASAD diagnosis in adults, instances of ASAD being overlooked in clinical settings were observed. This suggests that the complete recognition of ASAD in clinical practice is still not fully established and may be due to a lack of experience among clinicians. Negative feelings about cultural norms and symptoms could also contribute to selectively withholding relevant information from clinicians. In addition, the significant overlap of ASAD symptoms with other disorders may result in patients being diagnosed with other anxiety disorders or prioritizing treatment for comorbid conditions, inadvertently leading to the oversight of ASAD diagnosis.

In our study, we found that 11.1% of individuals diagnosed with ASAD had a history of suicide attempts. At the same time, the rate of suicide attempts was found significantly higher in those with ASAD compared to those without the diagnosis. As far as we know, apart from our study, there is no other epidemiological study investigating suicidality in patients diagnosed with ASAD. In a study focused on patients with mood and anxiety disorders, Pini et al. reported that separation anxiety played an essential role in predicting suicidal ideation (35). In another study by Karaytuğ et al., the authors demonstrated an increased risk of suicide attempts in patients with bipolar disorder accompanied by ASAD (11). In the current study, all patients who attempted suicide had a history of mood disorder and/or anxiety disorder, and the prevalence of suicide attempts was higher in patients with a history of a mood disorder but also diagnosed with ASAD. Furthermore, the presence of ASAD may adversely affect the course of other disorders and increase the risk of suicide in these patients. These findings point to the importance of early diagnosis and treatment of ASAD.

Our findings revealed that approximately one-third of individuals diagnosed with ASAD had at least one physical disease. Specifically, among the physical diseases, only migraine demonstrated a significant association with ASAD, which remained consistent even after further analysis. While previous studies reported associations between anxiety disorders and physical diseases such as cardiovascular diseases, diabetes, respiratory diseases, gastrointestinal diseases, and migraine, the relationship between ASAD and physical diseases has not been investigated (36-38). The connection between migraine and anxiety disorders has been a subject of debate. Some hypotheses suggest that anxiety disorders may trigger migraines, while others propose that common underlying factors, such as decreased serotonin levels, may contribute to their comorbidity. Moreover, recent experiments highlighting the role of oxytocin in trigeminal neurons have provided evidence suggesting that intranasal oxytocin administration could be effective in migraine treatment (39). Oxytocin, which is thought to be involved in the etiology of ASAD, may play a common role in the comorbidity of ASAD and migraine. Comprehensive studies are needed to confirm the existence and understand the nature of the relationship between migraine and ASAD.

In this study, we presented findings showing a high prevalence of ASAD among individuals who experienced childhood familial problems and traumatic events. Further analysis revealed that ASAD was 2.3 times more prevalent in those with at least one childhood traumatic experience. Incompatible family functioning and childhood traumas have been found to be associated with ASAD, as with many psychiatric disorders (7, 40, 41). In addition, we found a relationship between the diagnosis of ASAD and a family history of serious illness. The presence of a serious illness in the family can be seen as a significant event with various implications. A realistic fear of loss may manifest itself in an interpersonal context that includes separation anxiety. On the other hand, separation anxiety may be a normative reaction that plays a functional role (giving care to the patient, meeting basic needs) in the relationship with the sick individual. Symptoms may include worries about the loss of a loved one, somatic complaints and nightmares. Although the symptoms

may remain consistent across a spectrum ranging from a normative response to a disorder, longitudinal studies can help overcome the limitations in a retrospective evaluation of functionality

The lifetime prevalence of specific phobia, which is 11.3%, aligns with the findings of large epidemiological studies (e.g., 11.2% in the ECA study, 12.5% in the National Comorbidity Study Revision, 7.7% in the NEMESIS-2 study) (18, 42-46). In a limited number of studies conducted outside the USA and European countries, lower prevalence rates have been reported; for instance, in Lebanon, the prevalence was 7.1%, in Iraq, it was 4.2%, in Far East countries, it ranged from 2.6% to 3.8%, and in Turkiye, it ranged from 2.7% to 7.1% (22, 47-52). However, some studies reporting lower prevalence rates also reported high rates of subthreshold symptoms, indicating differences in the diagnostic consistency of diagnostic tools across cultures (51). Moreover, methodological differences make direct comparisons challenging.

Regarding specific phobia subtypes, we found that animal phobias were the most common, with a prevalence of 5%. Situational phobias had a prevalence of 3% while natural environment phobias and blood-injection-injury phobias demonstrated similar rates at 2.9% and 2.8%, respectively. Consistently, almost all studies have reported animal phobias as the most prevalent subtype (18, 22, 42-46, 49-51). These prevalence rates collectively indicate that specific phobia is a relatively common disorder, affecting approximately one in 10 individuals.

The close similarity between the point prevalence and lifetime prevalence in our findings suggests a chronic course for specific phobia, which correlates with the low rates of treatment seeking (6.6%) as we noted. On the other hand, patients with situational phobia exhibited relatively higher rates of seeking treatment. In the World Mental Health surveys, the rate of treatment seeking among individuals diagnosed with specific phobia was reported as 4.4% in low-income countries and 12.9% in high-income countries. The same study indicated that the highest rates of treatment admission were seen in situational phobias, particularly in cases like airplane phobia (15).

In specific phobia, the limitedness of the symptoms to a specific object, situation, or event, and the role of avoidance may lead to a decrease in the need for treatment (53). On the other hand, the onset of specific phobia in early childhood can be perceived as a structural feature, thus leading to the development of strategies that sustain life despite fear during childhood. The familial nature of these symptoms may further contribute to normalization, leading some patients to be unaware of treatment options or perceive a low need for treatment. Relative limitations of avoidance in situational phobias, less reporting of familial history, and later onset of the phobia may be the possible reasons for the higher rates of treatment admission in our study.

In our study, we observed a higher prevalence of specific phobia among women, which is consistent with findings from previous researches (18, 22, 42-46, 49-51). However, upon further examination, we found that this gender difference was specifically significant for animal phobias and situational phobias while no significant gender differences were observed for other phobia subtypes. This highlights the heterogeneous nature of specific phobia and emphasizes the need to detail the clinical distinctions among its subtypes.

On further analysis, we determined that the female gender was associated with a 1.9-fold increase in specific phobia. However, we could not find a relationship between specific phobia and educational level or income status. Specific phobia was more prevalent in individuals with multiple marriages and housewives. While the NEMESIS-2 and NESARC studies reported higher prevalences of specific phobia among low-income individuals (43, 45), other studies did not find a relationship between specific phobia and low income and educational level (42, 50). In the Mental Health Profile Study conducted on a national scale in Turkiye, specific phobia was not associated with demographic characteristics other than gender and urban living (50). Studies reporting that the prevalence of specific phobia increases with the increase in income and urbanization rates in high-income countries may explain the sociodemographic differences among countries.

Our study had some limitations. First, the cross-sectional design may introduce recall bias when collecting information through retrospective questioning. This limitation is particularly relevant when assessing childhood experiences, making it challenging to establish reliable temporal and causal relationships, thus warranting longitudinal studies to better understand cause-effect dynamics. Another limitation was that as the interviews were not allowed in the home environment due to the pandemic conditions, our study was carried out in family health centers. While family health units represent neighborhoods, the sample may not fully represent the general population due to its restriction to individuals visiting the family health center. In terms of diagnosis, objective methods such as structured interviews and biochemical tests were not used for physical diseases. Instead, diagnoses relied on general interviews, patients' statements, and medical records, potentially leading to oversight of certain diseases, especially undiagnosed ones. Despite these limitations, unlike most epidemiological studies, interviews in our study were conducted by experienced psychiatrists. Furthermore, the study provides valuable basic descriptive information, contributing to our limited understanding of ASAD.

Conclusions

In conclusion, our results show that ASAD and specific phobia are two highly prevalent anxiety disorders. Despite their high prevalence, both disorders exhibit low rates of treatment admission and are often unrecognized and untreated by clinicians. The prevalence of suicide attempt rates and the

exacerbation of symptoms by comorbid conditions emphasize the critical need for early diagnosis and intervention in ASAD. However, even with treatment initiation, the current evidence on treatment options remains insufficient. Specific phobia can persist chronically in the absence of adequate treatment. Additionally, while there is evidence to suggest that phobia subtypes are highly heterogeneous, these differences have not been adequately explored. Considering the significance of these disorders and the urgent need for effective management, we propose the development of international awareness programs focused on ASAD and specific phobia. Raising awareness among healthcare professionals and the general public about these conditions can facilitate early detection and ensure appropriate treatment is provided promptly.

Competing Interests: The authors have no competing interests to declare that are relevant to the content of this article.

Funding: The authors did not receive support from any organization for the submitted work.

Acknowledgments: The authors wish to thank the patients and families who participated in this study.

Authors' Contributions: Fatih EKİCİ: Conceptualization, data curation, formal analysis, investigation, methodology, supervision, validation, visualization, writing – original draft, writing – review and editing. Gizem KARAOĞLAN: Methodology, validation, writing – original draft, writing – review and editing. Ali KANDEĞER: Investigation, writing – original draft, writing – review and editing. Saltuk Lütfi DEMİR: Formal analysis, data curation, methodology, review and editing. Özkan GÜLER: Investigation, writing – original draft, writing – review & editing.

Data availability statement: The data that support the findings of this study are available from the corresponding author, [F.E.], upon reasonable request.

References

1.Manicavasagar V, Silove D. Is there an adult form of separation anxiety disorder? A brief clinical report. Aust N Z J Psychiatry. 1997 Apr;31(2):299-303. doi: 10.3109/00048679709073835

2.Manicavasagar V, Silove D, Curtis J. Separation anxiety in adulthood: a phenomenological investigation. Compr Psychiatry. 1997;38(5):274-282. doi: 10.1016/s0010-440x(97)90060-2

3.Cyranowski JM, Shear MK, Rucci P, Fagiolini A, Frank E, Grochocinski VJ, et al. Adult separation anxiety: psychometric properties of a new structured clinical interview. J Psychiatr Res. 2002;36(2):77-86. doi: 10.1016/s0022-3956(01)00051-6

4.Manicavasagar V, Marnane C, Pini S, Abelli M, Rees S, Eapen V, et al. Adult separation anxiety disorder: a disorder comes of age. Curr Psychiatry Rep. 2010;12(4):290-297. doi: 10.1007/s11920-010-0131-9

5.American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5®). Washington DC: American Psychiatric Publishing; 2013.

6.Shear K, Jin R, Ruscio AM, Walters EE, Kessler RC. Prevalence and correlates of estimated DSM-IV child and adult separation anxiety disorder in the National Comorbidity Survey Replication. Am J Psychiatry. 2006;163(6):1074-1083. doi: 10.1176/ajp.2006.163.6.1074

7.Silove D, Alonso J, Bromet E, Gruber M, Sampson N, Scott K, et al. Pediatric-Onset and Adult-Onset Separation Anxiety Disorder Across Countries in the World Mental Health Survey. Am J Psychiatry. 2015;172(7):647-656. doi: 10.1176/appi.ajp.2015.14091185

8.Manicavasagar V, Silove D, Curtis J, Wagner R. Continuities of separation anxiety from early life into adulthood. J Anxiety Disord. 2000;14(1):1-18. doi: 10.1016/s0887-6185(99)00029-8

9.Tasdemir A, Tamam L, Keskin N, Evlice YE. Assessment of co-morbidity of adult separation anxiety in patients with bipolar disorder. Nordic Journal of Psychiatry. 2016;70(2):93-102. doi: 10.3109/08039488.2015.1053098

10.Pini S, Abelli M, Shear KM, Cardini A, Lari L, Gesi C, et al. Frequency and clinical correlates of adult separation anxiety in a sample of 508 outpatients with mood and anxiety disorders. Acta Psychiatr Scand. 2010;122(1):40-46. doi: 10.1111/j.1600-0447.2009.01480.x

11.Karaytuğ MO, Tamam L, Demirkol ME, Namlı Z. Relationship Between Adult Separation Anxiety Disorder and Suicide in Patients with Bipolar Disorder. Psikiyatride Güncel Yaklaşımlar - Current Approaches in Psychiatry. 2022;14(1):261-267.

12.Pini S, Gesi C, Abelli M, Muti M, Lari L, Cardini A, et al. The relationship between adult separation anxiety disorder and complicated grief in a cohort of 454 outpatients with mood and anxiety disorders. J Affect Disord. 2012;143(1-3):64-68. doi: 10.1016/j.jad.2012.05.026

13.Essau CA, Conradt J, Petermann F. Frequency, comorbidity, and psychosocial impairment of specific phobia in adolescents. J Clin Child Psychol. 2000;29(2):221-231. doi: 10.1207/S15374424jccp2902_8

14.Eaton WW, Bienvenu OJ, Miloyan B. Specific phobias. Lancet Psychiatry. 2018;5(8):678-686. doi: 10.1016/S2215-0366(18)30169-X

15.Wardenaar KJ, Lim CCW, Al-Hamzawi AO, Alonso J, Andrade LH, Benjet C, et al. The cross-national epidemiology of specific phobia in the World Mental Health Surveys [published correction appears in Psychol Med. 2018 Apr;48(5):878]. Psychol Med. 2017;47(10):1744-1760. doi: 10.1017/S0033291717000174

16.Becker ES, Rinck M, Türke V, Kause P, Goodwin R, Neumer S, et al. Epidemiology of specific phobia subtypes: findings from the Dresden Mental Health Study. Eur Psychiatry. 2007;22(2):69-74. doi: 10.1016/j.eurpsy.2006.09.006

17.Kessler RC, Nelson CB, McGonagle KA, Liu J, Swartz M, Blazer DG. Comorbidity of DSM-III-R major depressive disorder in the general population: results from the US National Comorbidity Survey. Br J Psychiatry Suppl. 1996;(30):17-30.

18.Magee WJ, Eaton WW, Wittchen HU, McGonagle KA, Kessler RC. Agoraphobia, simple phobia, and social phobia in the National Comorbidity Survey. Arch Gen Psychiatry. 1996;53(2):159-168. doi: 10.1001/archpsyc.1996.01830020077009

19.LeBeau RT, Glenn D, Liao B, Wittchen HU, Beesdo-Baum K, Ollendick T, et al. Specific phobia: a review of DSM-IV specific phobia and preliminary recommendations for DSM-V. Depress Anxiety. 2010;27(2):148-167. doi: 10.1002/da.20655

20.Depla MF, ten Have ML, van Balkom AJ, de Graaf R. Specific fears and phobias in the general population: results from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). Soc Psychiatry Psychiatr Epidemiol. 2008;43(3):200-208. doi: 10.1007/s00127-007-0291-z

21.Chen CN, Wong J, Lee N, Chan-Ho MW, Lau JT, Fung M. The Shatin community mental health survey in Hong Kong. II. Major findings. Arch Gen Psychiatry. 1993;50(2):125-133. doi: 10.1001/archpsyc.1993.01820140051005

22.Ishikawa H, Kawakami N, Kessler RC; World Mental Health Japan Survey Collaborators. Lifetime and 12-month prevalence, severity and unmet need for treatment of common mental disorders in Japan: results from the final dataset of World Mental Health Japan Survey. Epidemiol Psychiatr Sci. 2016;25(3):217-229. doi: 10.1017/S2045796015000566

23.Elbir M, Alp Topbaş Ö, Bayad S, Kocabaş T. DSM-5 Bozuklukları için Yapılandırılmış Klinik Görüşmenin Klinisyen Versiyonunun Türkçeye Uyarlanması ve Güvenilirlik Çalışması [Adaptation and Reliability

of the Structured Clinical Interview for DSM-5-Disorders - Clinician Version (SCID-5/CV) to the Turkish Language]. Turk Psikiyatri Derg. 2019;30(1):51-56.

24.Diriöz M, Alkin T, Yemez B, Onur E, Eminağaoğlu N. Ayrılma anksiyetesi belirti envanteri ile yetişkin ayrılma anksiyetesi anketinin Türkçe versiyonunun geçerlik ve güvenirliği. Türk Psikiyatri Dergisi. 2012;23(2):108-116.

25.Silove DM, Marnane CL, Wagner R, Manicavasagar VL, Rees S. The prevalence and correlates of adult separation anxiety disorder in an anxiety clinic. BMC Psychiatry. 2010;10:21. doi: 10.1186/1471-244X-10-21

26.Pini S, Abelli M, Troisi A, Siracusano A, Cassano GB, Shear KM, et al. The relationships among separation anxiety disorder, adult attachment style and agoraphobia in patients with panic disorder. J Anxiety Disord. 2014;28(8):741-746. doi: 10.1016/j.janxdis.2014.06.010

27.Silove D, Manicavasagar V, O'Connell D, Morris-Yates A. Genetic factors in early separation anxiety: implications for the genesis of adult anxiety disorders. Acta Psychiatr Scand. 1995;92(1):17-24. doi: 10.1111/j.1600-0447.1995.tb09537.x

28.Eaves LJ, Silberg JL, Meyer JM, Maes HH, Simonoff E, Pickles A, et al. Genetics and developmental psychopathology: 2. The main effects of genes and environment on behavioral problems in the Virginia Twin Study of Adolescent Behavioral Development. J Child Psychol Psychiatry. 1997;38(8):965-980. doi: 10.1111/j.1469-7610.1997.tb01614.x

29.Bolton D, Eley TC, O'Connor TG, Perrin S, Rabe-Hesketh S, Rijsdijk F, et al. Prevalence and genetic and environmental influences on anxiety disorders in 6-year-old twins. Psychol Med. 2006;36(3):335-344. doi: 10.1017/S0033291705006537

30.Ogliari A, Spatola CA, Pesenti-Gritti P, Medda E, Penna L, Stazi MA, et al. The role of genes and environment in shaping co-occurrence of DSM-IV defined anxiety dimensions among Italian twins aged 8-17. J Anxiety Disord. 2010;24(4):433-439. doi: 10.1016/j.janxdis.2010.02.008

31.Taylor SE, Gonzaga GC, Klein LC, Hu P, Greendale GA, Seeman TE. Relation of oxytocin to psychological stress responses and hypothalamic-pituitary-adrenocortical axis activity in older women. Psychosom Med. 2006;68(2):238-245. doi: 10.1097/01.psy.0000203242.95990.74

32.Insel TR, Hulihan TJ. A gender-specific mechanism for pair bonding: oxytocin and partner preference formation in monogamous voles. Behav Neurosci. 1995;109(4):782-789. doi: 10.1037//0735-7044.109.4.782

33.Seligman LD, Wuyek LA. Correlates of separation anxiety symptoms among first-semester college students: an exploratory study. J Psychol. 2007;141(2):135-145. doi: 10.3200/JRLP.141.2.135-146

34.Hale III, William. An examination of separation anxiety disorder symptoms in adults from a clinical population. J Syst Integr Neurosci. 2018;4(2):1-5.

35.Pini S, Abelli M, Costa B, Martini C, Schiele MA, Baldwin DS, et al. Separation Anxiety and Measures of Suicide Risk Among Patients With Mood and Anxiety Disorders. J Clin Psychiatry. 2021;82(2):20m13299. doi: 10.4088/JCP.20m13299

36.Witthauer C, Ajdacic-Gross V, Meyer AH, Vollenweider P, Waeber G, Preisig M, et al. Associations of specific phobia and its subtypes with physical diseases: an adult community study. BMC Psychiatry. 2016;16:155. doi: 10.1186/s12888-016-0863-0

37.Peres MFP, Mercante JPP, Tobo PR, Kamei H, Bigal ME. Anxiety and depression symptoms and migraine: a symptom-based approach research. J Headache Pain. 2017;18(1):37. doi: 10.1186/s10194-017-0742-1

38.Härter MC, Conway KP, Merikangas KR. Associations between anxiety disorders and physical illness. Eur Arch Psychiatry Clin Neurosci. 2003;253(6):313-320. doi: 10.1007/s00406-003-0449-y

39.Tzabazis A, Kori S, Mechanic J, Miller J, Pascual C, Manering N, et al. Oxytocin and Migraine Headache. Headache. 2017;57 Suppl 2:64-75. doi: 10.1111/head.13082

40.Tay AK, Rees S, Kareth M, Silove D. Associations of adult separation anxiety disorder with conflict-related trauma, ongoing adversity, and the psychosocial disruptions of mass conflict among West Papuan refugees. Am J Orthopsychiatry. 2016;86(2):224-235. doi: 10.1037/ort0000126

41.Hoven CW, Duarte CS, Lucas CP, Wu P, Mandell DJ, Goodwin RD, et al. Psychopathology among New York city public school children 6 months after September 11. Arch Gen Psychiatry. 2005;62(5):545-552. doi: 10.1001/archpsyc.62.5.545

42.Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication [published correction appears in Arch Gen Psychiatry. 2005;62(7):768. Merikangas, Kathleen R [added]]. Arch Gen Psychiatry. 2005;62(6):593-602. doi:10.1001/archpsyc.62.6.593

43.Stinson FS, Dawson DA, Patricia Chou S, et al. The epidemiology of DSM-IV specific phobia in the USA: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Psychol Med. 2007;37(7):1047-1059. doi:10.1017/S0033291707000086

44.Bijl RV, Ravelli A, van Zessen G. Prevalence of psychiatric disorder in the general population: results of The Netherlands Mental Health Survey and Incidence Study (NEMESIS). Soc Psychiatry Psychiatr Epidemiol. 1998;33(12):587-595. doi:10.1007/s001270050098

45.de Graaf R, ten Have M, van Gool C, van Dorsselaer S. Prevalence of mental disorders and trends from 1996 to 2009. Results from the Netherlands Mental Health Survey and Incidence Study-2. Soc Psychiatry Psychiatr Epidemiol. 2012;47(2):203-213. doi:10.1007/s00127-010-0334-8

46.Alonso J, Angermeyer MC, Bernert S, Bruffaerts R, Brugha TS, Bryson H, et al; ESEMeD/MHEDEA 2000 Investigators, European Study of the Epidemiology of Mental Disorders (ESEMeD) Project. Prevalence of mental disorders in Europe: results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. Acta Psychiatr Scand Suppl. 2004(420):21-27. doi:10.1111/j.1600-0047.2004.00327.x

47.Karam EG, Mneimneh ZN, Karam AN, et al. Mental Disorders and War in Lebanon. In Kessler RC, Ustun TB, editors. The WHO World Mental Health Survey: Global Perspectives on the Epidemiology of Mental Disorders. New York: Cambridge Press; 2008. p. 265-278.

48.Alhasnawi S, Sadik S, Rasheed M, Baban A, Al-Alak MM, Othman AY, et al; Iraq Mental Health Survey Study Group. The prevalence and correlates of DSM-IV disorders in the Iraq Mental Health Survey (IMHS). World Psychiatry. 2009;8(2):97-109.

49.Kirmizioglu Y, Doğan O, Kuğu N, Akyüz G. Prevalence of anxiety disorders among elderly people. Int J Geriatr Psychiatry. 2009;24(9):1026-1033. doi:10.1002/gps.2215

50.Erol N, Kılıç C, Ulusoy M, Keçeci M, Şimşek Z. Türkiye Ruh Sağlığı profili: Erişkin nüfusla ilgili sonuçlar. In: Erol N, Kılıç C, Ulusoy M, Keçeci M, Şimşek ZT, editors. Türkiye Ruh Sağlığı Profili, Ön Rapor. Ankara: Aydoğdu Ofset, TC Sağlık Bakanlığı; 1997.

51.Lee S, Tsang A, Zhang MY, Huang YQ, He YL, Liu ZR, et al. Lifetime prevalence and inter-cohort variation in DSM-IV disorders in metropolitan China. Psychol Med. 2007;37(1):61-71. doi:10.1017/S0033291706008993

52.Cho MJ, Kim JK, Jeon HJ, Suh T, Chung IW, Hong JP, et al. Lifetime and 12-month prevalence of DSM-IV psychiatric disorders among Korean adults. J Nerv Ment Dis. 2007;195(3):203-210. doi:10.1097/01.nmd.0000243826.40732.45

53.Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system. Epidemiologic catchment area prospective 1-year prevalence rates of disorders and services. Arch Gen Psychiatry. 1993;50(2):85-94. doi:10.1001/archpsyc.1993.01820140007001