

## ORIGINAL ARTICLE

# Retrospective Analysis of Applications to Ankara AMATEM Unit: An Evaluation of the Pandemic Years

## Ankara AMATEM Birimi Başvurularının Geriye Dönük Analizi: Pandemi yıllarına Ait Bir Değerlendirme

<sup>1</sup>Bahar Yeşil Örnek , <sup>2</sup>Sevinç Ulusoy 

<sup>1</sup>Ankara Dr. Abdurrahman Yurtaslan Oncology Research and Training Hospital

<sup>2</sup>İstanbul Bakırköy Prof. Dr. Mazhar Osman Mental Health and Neurology Training and Research Hospital

### Correspondence

Bahar Yeşil Örnek, Ankara Dr. Abdurrahman Yurtaslan Oncology Research and Training Hospital

E-Mail: baharyesilege@gmail.com

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### ABSTRACT

**Aim:** In this study, it was aimed to determine the risk groups, diagnoses and co-diagnoses of addictive disorders and to determine the demographic and clinical variables that might affect addiction by examining all applications to the Ankara AMATEM unit during the COVID-19 pandemic.

**Materials and Method:** The sample of this retrospective and cross-sectional study consisted of individuals aged 14-83 years who applied to the AMATEM Clinic of Ankara Training and Research Hospital between 11.03.2020-11.03.2022 for forensic or individual reasons. Data were obtained by retrospective examination of the archive records of the hospital data processing system and subjected to statistical analysis.

**Results:** Of the 10508 participants, 10.2% (n=1071) were female and 89.8% (n= 9437) were male. The mean age was 32.13±9.92 years. Of those diagnosed with an addiction-related disorder, 9.9% (n=696) were female and 90.1% (n=6316) were male. The most common diagnosis was opiate use disorder (40.5%), the second most common was multiple drug and substance use disorder (15.5%), and the third most common was alcohol use disorder (8%). The most common psychiatric comorbidity was anxiety disorder (1%), followed by depression (0.3%).

**Conclusion:** During the pandemic period, the prevalence of addictive disorders was higher in the male gender and young adults. Opiate users were the most frequent users in children and adults. The pandemic period, which constitutes multifaceted stress, may contribute to vulnerability to addictive disorders. Prospective follow-up studies are needed to understand the effects of the pandemic on addictive disorders.

**Keywords:** substance use, opioid use disorder, AMATEM, pandemic

### Öz

**Amaç:** Bu çalışmada COVID-19 pandemisi süresince Ankara AMATEM birimine yapılan tüm başvuruların incelenerek bağımlılık bozukluklarının risk gruplarının, tanı ve eş tanılarının belirlenmesi ve bağımlılığı etkileyebilecek demografik ve klinik değişkenlerin saptanması amaçlanmıştır.

**Gereç ve Yöntem:** Bu retrospektif ve kesitsel çalışmanın örneklemini 11.03.2020-11.03.2022 tarihleri arasında Ankara Eğitim ve Araştırma Hastanesi AMATEM Kliniğine adli/bireysel nedenlerle başvuran 14-83 yaş arası tüm bireyler oluşturmuştur. Veriler hastane bilgi işlem sistemi arşiv kayıtlarının geriye dönük olarak incelenmesi ile elde edilmiş ve istatistiksel analize tabi tutulmuştur.

**Bulgular:** 10508 katılımcının %10,2'si (n=1071) kadın ve %89,8'i (n=9437) erkekti. Yaş ortalaması 32,13±9,92 yıldı. Bağımlılıkla ilişkili bir bozukluk tanısı alanların %9,9'u (n=696) kadın ve %90,1'i (n=6316) erkekti. En sık opiyat kullanım bozukluğu (%40,5), ikinci sıklıkta çoklu ilaç ve madde kullanım bozukluğu (%15,5) ve üçüncü sıklıkta alkol kullanım bozukluğu (%8) saptandı. En sık görülen psikiyatrik komorbidite ise anksiyete bozukluğu (%1) ve ikinci sıklıkta depresyon(%0,3) idi.

**Sonuç:** Pandemi döneminde, bağımlılık bozukluklarının yaygınlığı erkek cinsiyette ve genç yetişkinlerde daha yüksekti. Opiyat kullanıcıları çocuklarda ve yetişkinlerde en sık görülen madde kullanım bozukluğuydu. Çok yönlü stres oluşturan pandemi dönemi, bağımlılık bozukluklarına karşı savunmasızlığa katkıda bulunabilir. Pandemi'nin bağımlılık bozuklukları üzerindeki etkilerini anlamak için ileriye dönük takip çalışmalarına ihtiyaç vardır.

**Anahtar Kelimeler:** madde kullanımı, opioid kullanım bozukluğu, AMATEM, pandemi

### Introduction

The coronavirus-2019 (COVID-19), which was first reported in the world in November 2019 and caused a pandemic, has also had some effects on diseases other than COVID-19 [1]. It has been reported that the pandemic period negatively affected the treatment process of chronic mental illnesses due to social isolation, increased stress and decreased access to treatment [2]. The COVID-19 pandemic also presented some challenges for people with substance use disorders (SUDs). SUDs are among the mental disorders that are increasing in number worldwide. Disorders of 10 substances including alcohol, caffeine, cannabis, hallucinogens, inhalants, opiates, sedative-hypnotics-anxiolytic drugs, stimulants, tobacco and

other unknown substances are classified as substance-related disorders and addictive disorders in DSM-V [3]. Patients with SUDs constitute a vulnerable group with both preventive and maintenance treatment needs [4]. Information on the frequency and characteristics of substance use belonging to this group contributes to the determination of regional addiction trends, the needs of patient, prevention plans, and the formulation of treatment and rehabilitation policies. However, it is very difficult to determine the factors associated with the use of addictive substances used for non-therapeutic purposes and to determine the actual frequency of use [5]. According to the biennial report published by the UN Office on Drugs and Crime (UNODC), 271 million

people worldwide (5.5% of the population aged 15-64) use drugs [6]. Despite various studies showing that the prevalence of SUDs in Turkey is at a lower rate of 2.7% compared to other countries, an increase in the prevalence of substance use has been reported [7]. In a study conducted by Turkey drug and drug addiction monitoring center (TUBİM) in 2011, which reached 8,045 individuals, the lifetime SUDs rate was 2.9% (15-24 age group). Cannabis ranked first in frequency and inhalants ranked second [8]. In a study conducted in 2018 and carried out in 26 provinces, lifetime substance use at least once was most prevalent in the 15-34 age group (65%) and the most commonly used substance was reported as cannabis [9].

Although there are applications to health institutions due to SUDs in every region, there are fewer data on the demographic characteristics of users living in provinces other than Istanbul. In a study conducted in 2001-2005 by Research, Treatment, and Training Center for Alcohol and Substance Dependence (AMATEM) in Gaziantep province, 96.8% of the applicants were male, the mean age was 36.02, alcohol use disorder (AUD) was 46.8%, opiate use disorder (OUD) 42.1% and cannabis use disorder (CUD) was 7.1% [10]. In another study conducted in Adiyaman province, OUD was found as 21.7%, CUD 30.4%, AUD 26.1%, stimulant use disorder (6.5%), and inhalant use disorder (IUD) 15.2% [11].

In this study, it was aimed to determine the demographic and clinical variables that may have an impact on addiction disorders during the pandemic process. For this purpose, it is planned to retrospectively examine all applications to an AMATEM in Ankara for two years, starting from 11.03.2020, the date when the pandemic was declared in Turkey. It is thought that the results of the study will shed light on guiding factors in the treatment and rehabilitation of addiction disorders.

## Method

This study was a retrospective, single-centered, and cross-sectional study. The records of the participants admitted to AMATEM at the Ankara Training and Research Hospital were screened by the researchers. The study sample consisted of individuals who applied to AMATEM from 11.03.2020 to 11.03.2022. Ethical approval for the study was obtained from the ethics committee of Dr. Abdurrahman Yurtaslan Oncology Training and Research Hospital (proof; 24.02.2022, no: 2022-02/53).

Among the 33964 applicants whose records were detected in the AMATEM information operating system between the specified dates, 23351 applicants whose T.R. ID number and date of birth matched exactly were not included in the study due to repetition and 105 applicants were not included in the study due to incomplete medical records. As a result, the study was completed with a total of 10508 participants between the ages of 14-83, 1071 of whom were females and 9437 males.

A questionnaire evaluating the demographic data

and clinical data of the participants was developed by the researchers. The demographic data included age, gender, and kind of outpatient clinic (probation/forensic outpatient clinic/general outpatient clinic/health board/children's outpatient clinic). Clinical data included the final diagnosis and psychiatric comorbidities determined according to ICD-10 (International Classification of Disease and Related Health Problems) criteria, confirmed by psychiatrist examination and routine blood/urine tests. After the participants' files were scanned retrospectively by the researchers, the data obtained were transferred to this questionnaire.

The distinction between definite diagnosis and comorbidity was determined according to the diagnosis classification marked by the physician during the examination in the information processing system. In our study, non-substance psychiatric diagnoses included depressive disorder, anxiety disorder, unspecified non-organic psychosis, and general psychiatric examination were referred as other main psychiatric diagnoses.

## Statistical Analysis

The collected data were analyzed using SPSS 22.0 (Statistical Package for the Social Sciences) package program. The conformity of continuous numerical variables to normal distribution in two groups was tested by Shapiro Wilk normality test and homogeneity of group variances was tested by Levene test. Categorical variables were given as the number of people (n) and the percentage value equivalents of the number of people (%). Because the continuous data that did not show normal distribution, Mann Whitney U test was used to test differences between groups. Categorical data were analyzed with Pearson's chi-square test and Fisher's exact test when the expected cell value was <5. Quantitative data not normally distributed were presented as quartiles (Q1-Q3). A type-I error rate of 5% was used throughout the study and  $p < 0.05$  was considered statistically significant.

## Results

10.2% (n=1071) of the 10508 participants included in the study were female and 89.8% (n= 9437) were male. Of those diagnosed with addictive disorders, 9.9% (n=696) were female and 90.1% (n=6316) was male. The mean age of the participants was  $32.13 \pm 9.92$  years (min-max; 14-83). The mean age of alcohol users [ $33.10 \pm 10.33$  (min-max; 26-39)] was higher than the mean age of substance users [ $31.73 \pm 9.60$  (min-max; 25-36)] ( $p=0.001$ ).

During the pandemic, 20.1% (n=2109) of the participants were admitted to the probation outpatient clinic, 12.4% (n=1306) to the forensic outpatient clinic, 65.1% (n=6838) to the general outpatient clinic, 2.2% (n=226) to the health board and 0.3% (n=29) to the pediatric outpatient clinic in AMATEM. The rate of admissions made for forensic (probation + forensic) reasons was 32.5% (n=3415).

Main diagnoses in diagnostic assessment were as follows: OUD 40.5% (n=4257), AUD 8% (n=841), polydrug and substance use disorder (PUD) 15.5% (n=1633), CUD 2.1% (n=221), inhalant use disorder (IUD) 0.2% (n=23), gambling disorder (GD) 0.2% (n=20), cocaine use disorder 0.1% (n=7), sedative-hypnotic-anxiolytic use disorder 0.1% (n=10), depressive disorders 1% (n=108), anxiety disorder 2.8% (n=298), unspecified non-organic psychosis 0.2% (n=18), general psychiatric examination 29.2% (n=3072) (Table 2).

The psychiatric comorbidities of the participants were as follows: anxiety disorder 1% (n=105), depression 0.3% (n=30), unspecified non-organic psychosis 0.0% (n=4). In terms of comorbid diagnoses no-comorbidity was entered for 98.7% (n=10,369) of the participants (Table 3).

Of the 10508 participants, 10.2% (n=1071) were female. In women, the OUD rate was 39.1% (n=419), AUD 7% (n=75), PUD 16.3% (n=175), CUD 2.1% (n=22), IUD 0% (n=0), GD 0.1% (n=1), cocaine use disorder 0.2% (n=2), sedative-hypnotic-anxiolytic use disorder 0.2% (n=2), depressive disorders 0.8% (n=9), anxiety disorder 3.3% (n=35), unspecified non-organic psychosis 0.1% (n=1), general psychiatric examination 30.8% (n=330). In men, the OUD rate was 40.7% (n=3838), AUD 8.1% (n=766), PUD 15.4% (n=1458), CUD 2.1% (n=199), IUD 0.2% (n=23), GD 0.2% (n=19), cocaine use disorder 0.1% (n=5), sedative-hypnotic-anxiolytic use disorder 0.1% (n=8), depressive disorders 1% (n=99), anxiety disorder 2.8% (n=263), unspecified non-organic psychosis 0.2% (n=17), general psychiatric examination 29.1% (n=2742). There was no statistical difference between genders in terms of diagnosis and comorbidity distribution (p=0.362; p=0.98, respectively).

Those between the ages of 14 and 18 who applied to the pediatric outpatient clinic constituted 0.3% (n=29) of the sample. Of these, 36.3% (n=11) had OUD, 29.7% (n=9) had PUD, 3.3% (n=1) had CUD, 3.3% (n=1) had AUD and 26.4% (n=8) had general psychiatric examination diagnoses. No comorbidity was noted.

**Table 1:** Demographic Characteristics of Participants

	Female(n=1071)	Male(n=9437)	X <sup>2</sup> /Z	p
Age [median (Q1-Q3)]	29 (24-37)	30 (25-37)	-3.552	0.001 <sup>a</sup>
Variable	N(%)	N (%)		
<b>Outpatient clinic</b>				
Probation policlinic	131(12.2)	1978(21)		
Forensic policlinic	134(12.5)	1172(12.4)		
General policlinic	742(69.3)	6096(64.6)	150.519	0.001 <sup>b</sup>
Health council	46(4.3)	180(1.9)		
Child policlinic	18(1.7)	11(0.1)		
Total	1071(100)	9437(100)		

n: Number; a: Mann whitney U test; b: Chi square test; X<sup>2</sup>: Chi square value; Z: Mann Whitney U value; p<0.05 significance

**Table 2:** Diagnosis of Participants

Diagnosis	Female N (%)	Male N(%)	X <sup>2</sup>	P
Opioid use disorder	419 (39,1)	3838 (40,7)		
Alcohol use disorder	75 (7,0)	766 (8,1)		
Cannabinoid use disorder	22 (2,1)	199 (2,1)		
Inhalant use disorder	0(0)	23(0,2)		
Polysubstance use disorder	175 (16,3)	1458(15,4)		
Gambling disorder	1 (0,1)	19(0,2)		
Depressive disorders	9 (0,8)	99 (1)	12.028	0.362
Anxiety disorders	35 (3,3)	263 (2,8)		
Nonorganic psychotic disorder	1 (0,1)	17 (0,2)		
Sedative-hipnotic-anxiolytic use disorder	2(0,2)	8(0,1)		
Cocain use disorder	2(0,2)	5(0,1)		
General psychiatric examination	330 (30,8)	2742 (29,1)		
Total	1071(100)	9437(100)		

n: Number; X<sup>2</sup>: Chi square value (Pearson Chi-square test), p<0.05 significance

**Table 3:** Psychiatric Comorbidities of Participants

Psychiatric Comorbidity	Female N (%)	Male N(%)	X <sup>2</sup>	P
Anxiety disorders	11 (1)	94 (1)		
Depressive disorders	3 (0,3)	27 (0,3)		
Unspecified non-organic psychotic disorder	0 (0)	4 (0,0)	0.116	0.98
No Comorbidity	1057 (98,7)	9312 (98,7)		
Total	1071(100)	9437(100)		

n: Number; X<sup>2</sup>: Chi square value (Fisher's exact test), p<0.05 significance

**Discussion**

The results of this study, which was conducted by retrospectively analyzing the file information of 10508 cases admitted to the AMATEM unit during the COVID-19 pandemic, provide important data on the effects of the pandemic period on addictive disorders.

In our study, in which the number of male applicants was higher, it was observed that the addiction rate of the male gender was higher (90.1%; n=6316). In studies conducted worldwide and in our country, the prevalence of addictive disorders was reported higher in males in all age groups [10,12,13]. Although addiction rates for the female gender have not been clearly determined yet, an increase has been reported in recent years. In the study conducted by Asan et al. [5] with 302 individuals diagnosed with AUDs or SUDs, the rate of females was 6.3%. In another study conducted in our country by AMATEM, the rate of females was found as 5.2% [14]. In our study, the rate of addiction in the female gender was 9.9% (n=696), which is relatively high compared to the rates in studies conducted in our country. According to a study conducted in the

USA, 45% of individuals aged >12 years who used illicit drugs were female. However, these rates may vary depending on regional, socioeconomic and cultural differences [15]. The multifaceted stress caused by the pandemic may contribute to the vulnerability of women in terms of addiction. Women may be more vulnerable during stressful periods and may use alcohol or substance as a coping mechanism due to high perceived stress [16].

Today, with the ease of access to substances, substance use disorders have decreased to young ages, and the risk of addiction has increased day by day [11]. In our study, the mean age of substance users was  $31.73 \pm 9.60$  and the range was 25-36. According to TUBİM data, substance use is most common in the young age group between the ages of 15-34, as in our study. Crisis periods accompanying developmental periods occur at young ages when substance use is common. Biological changes in adolescence, gaining an identity, curiosity about learning and experimenting, giving importance to peer sharing, and then marriage, acquiring a profession, and military service in young adulthood are part of these periods [8]. The results of the studies on how the pandemic affects substance use in young people are conflicting. Some studies reported an increase of substance use in young people and adults during the pandemic. This increase was associated with disruption of home organization and increased depression/anxiety [18]. There are also studies showing that substance use decreased with the pandemic [17, 19]. Substance use by young people mostly depends on access to drugs and occurs in peer groups. Studies have reported that social restrictions implemented to prevent the spread of the virus during the pandemic have reduced the rates of substance use among youth by decreasing access to substances under the age of 24, increasing parental supervision, and supporting social life [17]. It is possible that the young population, which represents a vulnerable population in terms of addictive disorders, may have been affected by the consequences of the pandemic, but more studies are needed to determine the direction and extent of this effect.

Our study also found that alcohol users were older than substance users, as in the general population [5,14]. The fact that the harmful effects of alcohol emerge at a later age and that it is more easily accepted in the society compared to other substances are considered among the reasons for this situation [20, 21].

Karaağaç et al. [14] found that the most common reason for admission to treatment was alcohol dependence (37.2%), the second most common reason was cannabis dependence (34.1%), and the third most common reason was opiate dependence among cases who received inpatient treatment in AMATEM. In other studies, OUD was the most frequent disorder, with a rate of 47.1% and 53.3% [5,10]. In a study conducted in AMATEM in Ankara, the rate of OUD patients admitted for treatment was 8.7% in 2004 and increased to 38% in 2009. In the same study, 2% of inpatients aged under 18 were diagnosed with OUD in

2004 and increased to 47% in 2009 [21]. In our study, the most common reason for admission to AMATEM was OUD (40.5%), followed by PUD (15.5%) and AUD (8%). Substance preference may be influenced by factors such as the size of the city, economic development level, education, and income status of individuals [23]. In our study conducted in Ankara, the third largest city and the capital of Turkey, local differences and accessibility to the substance may have affected the substance preferences of users. Combined buprenorphine + naloxone and subcutaneous implant treatments are carried out in AMATEM of Ankara, and an outpatient clinic control is required once a month for these treatments. The results of our study suggest that the rates of OUDs were higher may be related to the fact that patients with OUDs reached treatment more frequently during the pandemic than other substance users.

PUD, one of the other substance-related disorder diagnoses evaluated in our study, refers to multiple substance use disorders in the ICD 10 classification. Mutlu and Sarıkaya reported that 74% of the participants had PUD in their study conducted in AMATEM [13]. In our study, the PUD rate was 15.5%, which is lower than in this study. This result in our study may be related to decreased access to different substances due to economic reasons and restrictions in pandemic [17]. However, the significant difference between the rates reveals the aspect of PUD that requires detailed evaluation.

The prevalence of CUD was 2.1% in our study. The use of cannabis, which we found at a lower rate compared to other studies in our country, is not often isolated but occurs in combination with other substances [10, 14, 24]. The low rates of CUD in our study and the absence of a diagnosis of stimulant addiction in the sample suggested that this group might have been diagnosed with PUD. Another reason may be that the tendency to continue using cannabis due to the low rate of withdrawal symptoms reduced the rates of seeking treatment [10]. In addition, inhalants, cocaine and sedative-hypnotic-anxiolytic drug use disorder were diagnosed less in the adult age group in our study, which is consistent with the literature [13,14].

In our study, pediatric outpatient clinic admissions constituted 0.3% of all admissions. Of these few applicants, 36.3% were diagnosed with OUD, 29.7% with PUD, 3.3% with CUD, 3.3% with AUD and 26.4% with general psychiatric examination. In a study conducted among the pediatric population in Turkey, PUD (80%) was the most common SUD in adolescents, synthetic cannabis (36.7%) was the most preferred substance, and initial substance use often started with inhalants [25]. Although OUD was the most common diagnosis in our study, the prevalence of PUD was found quite high in children in line with other studies. It was suggested that the purpose of multiple use is to increase the effect of the substances, to maintain with the other substance when the main preferred substance cannot be reached or to balance the harmful effect of the primary substance [7]. The fact

that OUD was detected more than PUD in our study may be related to the difficulty in accessing multiple substances due to social and economic reasons caused by the pandemic. In addition, as in adults, admission rates may have increased with the demand of opiate users to access buprenorphine + naloxone treatments [11].

GD, one of the other diagnoses examined in our study, was defined for the first time in DSM V under the category of non-substance related disorders. In the ICD 10 diagnostic classification, it is expressed as a habit and adjustment disorders/pathological gambling and lifestyle problems/betting and gambling. In our study, the rate of pathological gambling was 0.2% during the pandemic, all cases were male, and this result is consistent with the pre-pandemic prevalence of 0.5-3.0% in adults [26]. Although the effects of the pandemic on this disorder are not clearly understood, an increase in GD in the young and male population and a decrease in commercial gambling associated with the measures taken have been associated with the pandemic [27].

Other main psychiatric diagnoses in our sample were depressive disorder (1%), anxiety disorder (2.8%), unspecified non-organic psychosis (0.2%) and general psychiatric examination (29.2%) (Table 2). The World Health Organization reported the prevalence of depression as 4.4%, anxiety disorder as 3.6% and psychotic disorder as 1% in the general population for 2015 [28]. In our study, the frequency of admission to AMATEM outpatient clinics with psychiatric diagnoses other than addiction disorders was lower. It is possible that this result is related to the decrease in the application to treatment services due to pandemic precautions [2]. It is also known that people with addictive disorders are exposed to more stigmatization [29]. Since AMATEM is a special clinic for addictive disorders, people with comorbid psychiatric diagnoses may have applied to other outpatient clinics due to fear of stigmatization.

Anxiety disorder (1%), depression (0.3 %) and unspecified non-organic psychosis (0.0 %) were other comorbidities. A study investigating psychiatric comorbidities in addiction disorders found high comorbidity rates [30]. In one study, patients primarily reported addiction-related symptoms and did not report other psychiatric symptoms [31]. In our study, comorbidity rates were quite low and 98.7% patients were diagnosed with no-comorbidity. This result may be related to overlooked other accompanying symptoms as a result of prioritizing addiction treatment. However, it is known that in the presence of psychiatric comorbidity, admissions to treatment are higher and the frequency of treatment dropout is higher [32, 33]. Detailed psychiatric examination and identifying comorbid diagnoses in AMATEM admissions would make significant contributions to treatment management.

The retrospective and single center design of the study, obtaining data from patient records have

limited our study. So, the results of the study may not be generalized. Another limitation is that pre-pandemic data could not be included in the analysis due to problems with the information operating system; therefore, pre-pandemic data could not be compared. However, the results of our descriptive study with a large sample may contribute to the comparison of clinical and demographic characteristics in other AMATEM admissions. Future prospective follow-up studies to understand the effects of the pandemic on addictive disorders may be useful in understanding the etiology of addictive disorders.

In conclusion, the prevalence of addictive disorders was higher in the male gender and young adults during the pandemic. Opiate users were the most frequently admitted group to treatment both in the pediatric and the adult age group. The pandemic period, which constitutes multifaceted stress, may contribute to vulnerability to addictive disorders. Following a treatment plan in which pharmacological and psychotherapeutic interventions are used in combination, telepsychiatry can be included in the treatment plan, and cases can be followed up with frequent follow-ups will be useful in the post-pandemic period.

#### Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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#### Ethics Approval

This study was approved with the decision number 2022-02/53 at the meeting dated 22.02.2022 of the Non- Invasiv Researchs Ethics Committee of SBU Dr. Abdurrahman Yurtaslan Oncology Training and Research Hospital.

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#### Authors' Contributions

Conception: B.Y.Ö., S.U., Design: B.Y.Ö., Data Collection and Processing: B.Y.Ö., Supervision: S.U., Analysis and Interpretation: : B.Y.Ö., S.U., Literature Review: S.U., Writer: B.Y.Ö., S.U., Critical Review: B.Y.Ö.

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