BMedJ
Balıkesir Medical Journal
2017

BALIKESİR MEDICAL JOURNAL

Since 2017

BMedJ is an open-access, scientific, peer-reviewed journal that adheres to the principles of impartial and double-blind peer review. The journal is published electronically every 4 months in **April, August and December.**

2025

Cilt / Volume 9
Sayı / Number 1

ISSN: 2564-6664

Nisan / April
2025

YAYIN KURULU VE İLETİŞİM

EDITORIAL BOARD AND CORRESPONDANCE

Doç. Dr. Ali DURAN
Genel Cerrahi AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Doç. Dr. Ahmet Emrah AÇAN
Ortopedi ve Travmatoloji AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Doç. Dr. Şakir ONGÜN
Üroloji AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Doç. Dr. Yusuf Murat BAĞ
Genel Cerrahi AD, SBÜ Ankara Sağlık Uygulama ve Araştırma Merkezi, Ankara, Türkiye

Doç. Dr. Sabri KÖSEOĞLU
KBB AD, Muğla Sıtkı Koçman Üniversitesi Tıp Fakültesi, Muğla, Türkiye

Doç. Dr. Özgür KÜLAHCI
Tıbbi Patoloji AD, SBÜ Adana Tıp Fakültesi Adana Şehir Eğitim ve Araştırma Hastanesi, Adana, Türkiye

Doç. Dr. Sabit SARIKAYA
Kalp ve Damar Cerrahisi AD, SBÜ Koşuyolu Yüksek İhtisas Eğitim ve Araştırma Hastanesi, İstanbul, Türkiye

Dr. Öğr. Üyesi Selim AFŞAR
Kadın Hastalıkları ve Doğum AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Dr. Öğr. Üyesi Ogün AYDOĞAN
Genel Cerrahi AD, Aydın Adnan Menderes Üniversitesi Tıp Fakültesi, Aydın, Türkiye

Dr. Öğr. Üyesi Erman ALÇI
Genel Cerrahi AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Uzm. Dr. Ahmet Yücel ÜÇGÜL
Göz Hastalıkları AD, Ahi Evran Üniversitesi, Kırşehir Eğitim ve Araştırma Hastanesi, Kırşehir, Türkiye

Uzm. Dr. Berk GÖKTEPE
Genel Cerrahi AD, Ege Üniversitesi Tıp Fakültesi, İzmir, Türkiye

DAHİLİ TIP BİLİMLERİ ALAN EDİTÖRLERİ
INTERNAL MEDICAL SCIENCES SECTION EDITORS

Doç. Dr. Pınar KORKMAZ
Enfeksiyon Hastalıkları AD, Kütahya SBÜ Tıp Fakültesi, Kütahya, Türkiye

Doç. Dr. Tuba ERDEM SULTANOĞLU
Fiziksel Tıp ve Rehabilitasyon AD, Düzce Üniversitesi Tıp Fakültesi, Düzce, Türkiye

Doç. Dr. Hilmi Erdem SÜMBÜL
İç Hastalıkları AD, Adana Şehir Eğitim Araştırma Hastanesi, Adana, Türkiye

Doç. Dr. İhsan SOLMAZ
İç Hastalıkları AD, Diyarbakır Gazi Yaşargil Sağlık Uygulama ve Araştırma Merkezi, Diyarbakır, Türkiye

Doç. Dr. Nizamettin KOCA
İç Hastalıkları AD, Bursa Şehir Hastanesi, Bursa, Türkiye

Doç. Dr. Bahri ELMAS
Çocuk Sağlığı ve Hastalıkları AD, Sakarya Üniversitesi Tıp Fakültesi, Sakarya, Türkiye

Dr. Öğr. Üyesi Deniz ALÇI
Ruh Sağlığı Hastalıkları AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Dr. Öğr. Üyesi Özge KAMA BAŞCI
İç Hastalıkları AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Dr. Öğr. Üyesi Banu KARACA
Enfeksiyon Hastalıkları AD, Kâtip Çelebi Üniversitesi Atatürk Eğitim ve Araştırma Hastanesi, İzmir, Türkiye

Dr. Öğr. Üyesi Yekta ÖZKAN
Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları AD, Afyonkarahisar SBÜ Tıp Fakültesi Hastanesi, Afyon, Türkiye

Dr. Öğr. Üyesi Mehmet Göktuğ EFGAN
Acil Tıp AD, Kâtip Çelebi Üniversitesi Atatürk Eğitim ve Araştırma Hastanesi, İzmir, Türkiye

Dr. Öğr. Üyesi Yener ÖZEL
Tıbbi Mikrobiyoloji AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Dr. Öğr. Üyesi Saliha UYSAL
Tıbbi Biyokimya AD, Balıkesir Üniversitesi Tıp Fakültesi, Balıkesir, Türkiye

Dr. Öğr. Üyesi Yonca ÇOLUK
KBB AD, Giresun Üniversitesi, Tıp Fakültesi, Giresun, Türkiye

Dr. Öğr. Üyesi Esra M. Cüce AYDOĞMUŞ
Biyofizik A.D, Maltepe Üniversitesi Tıp Fakültesi, İstanbul, Türkiye

İLETİŞİM ADRESİ

CORRESPONDENCE ADDRESS

Prof. Dr. Sinan SARAÇLI

Balıkesir Üniversitesi Tıp Fakültesi, Çağış Yerleşkesi 10145 BALIKESİR

Faks: (0266) 612 10 09 **E-posta:** bmj.editor@balikesir.edu.tr

Web: https://dergipark.org.tr/tr/pub/bmedj

İÇİNDEKİLER / CONTENTS

ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE	Sayfa No: Page Num:
Characteristics of Ophthalmologic Consultations and Hospital Admissions in the Emergency Department of a Tertiary Care Hospital: A Retrospective Study Üçüncü Basamak Bir Hastanenin Acil Servisinde Oftalmolojik Konsültasyonların ve Hastane Başvurularının Özellikleri: Retrospektif Bir Çalışma Vehbi ÖZAYDIN Serap KARACA Fatma Sarı DOĞAN Emel ALTINTAŞ Murat ÇETİN Onur İNCEALTIN	1 - 7
Emotional Eating and Mindful Eating in Accordance with Stakeholder Opinions of Dietitians, Psychologists and Psychological Counselors Diyetisyen, Psikolog ve Psikolojik Danışmanların Paydaş Görüşleri Doğrultusunda Duygusal Yeme ve Farkındalıkla Yeme Aysu BAYRAM SAPTIR Tuğba Seda ÇOLAK TURAN	8 - 35
Team Identification Level Among University Student Sports Fans: Its Relationship with Self-Esteem, Anger Level, and Anger Expression Styles Spor Taraftarı Olan Üniversite Öğrencilerinde Takımla Özdeşleşme Düzeyinin Benlik Saygısı, Öfke Düzeyi ve Tarzı ile İlişkisi Deniz ALÇI Emin Oryal TAŞKIN Erol ÖZMEN	36 - 47
Retrospective Investigation of Patients Referred to the Emergency Department with Chest Pain Göğüs Ağrısı Nedeniyle Acil Servise Sevk Edilen Hastaların Retrospektif İncelenmesi Ramazan KIYAK Bahadır ÇAĞLAR Süha SERİN Meliha FINDIK	48 - 58

DERLEME / REVIEW

Sayfa No:
Page Num:

Çocuk Obezitesi ve Obezite Cerrahisi: Tanımı, Nedenleri, Tedavisi

Childhood Obesity and Bariatric Surgery: Definition, Causes, Treatment and Management

59 - 63

Ahmet Hikmet ŞAHİN

OLGU SUNUMU / CASE REPORT

Miliyer Paternli Akciğer Adenokarsinomunun Tirozin Kinaz İnhibitörüne Dramatik Yanıtı

Dramatic Response of Miliary Pattern Lung Adenocarcinoma to Tyrosine Kinase Inhibitor

64 - 69

Coşkun DOĞAN

Nadir Olgulardan; Sinonazal Onkositik Papillom

Rare Case; Sinonasal Oncocytic Papilloma

70 - 74

Arzu YILDIRIM ÖZLÜK Gülay TURAN

Zeynep Gözde MISIRLI

EDİTÖRE MEKTUP / LETTER TO EDITOR

Comparison of Biliary Stent and Nasobiliary Drain in Patients with Biliary Leak After Cholecystectomy

Kolesistektomi Sonrası Biliyer Kaçak Gelişen Hastalarda Biliyer Stent ve Nazobiliyer Drenin Karşılaştırılması

75 - 76

İbrahim Ethem GÜVEN

Characteristics of Ophthalmologic Consultations and Hospital Admissions in the Emergency Department of a Tertiary Care Hospital: A Retrospective Study

Üçüncü Basamak Bir Hastanenin Acil Servisinde Oftalmolojik Konsültasyonların ve Hastane Başvurularının Özellikleri: Retrospektif Bir Çalışma

Vehbi ÖZAYDIN[1], Serap KARACA[2], Fatma Sarı DOĞAN[3], Emel ALTINTAŞ[4]

Murat ÇETİN[5], Onur İNCEALTIN[1]

[1]Department of Emergency Medicine, Goztepe Prof. Dr. Suleyman Yalcin City Hospital, Istanbul, Türkiye.
[2]Department of Ophthalmology, Goztepe Prof. Dr. Suleyman Yalçin City Hospital, Istanbul, Türkiye.
[3]Department of Emergency Medicine, Istanbul Fatih Sultan Mehmet Training and Research Hospital, Istanbul, Türkiye..
[4]Deparment of Emergency Medicine, Ufuk University, Ankara, Türkiye.
[5]Department of Emergency Medicine, Manisa Merkezefendi State Hospital, Manisa, Türkiye.

Objective: This study aims to evaluate the characteristics of ophthalmologic consultations, demographic data of patients, and reasons for hospital admission among patients presenting with ophthalmologic complaints to the emergency department (ED) of a tertiary care hospital.

Materials and Methods: This retrospective study included 3,617 patients with ocular complaints. The patients presented to a tertiary care ED in Istanbul between August 2021 and August 2022. The hospital's automation system was used to evaluate emergency ophthalmologic consultations.

Results: The mean age of the patients was 42.17 ± 16.60 years, and 66.8% were male. The majority of visits (63.9%) occurred outside of working hours. Of these, 1,642 (45.4%) patients presented due to trauma. Intraocular foreign bodies were detected in 2,419 patients (66.9%). Among non-traumatic conditions, conjunctivitis (26.6%), subconjunctival hemorrhage (8.9%), and blepharitis (3.3%) were the most common diagnoses. A total of 91 patients (2.5%) were admitted to the ophthalmology department. The hospital admission rate was higher among older patients, those with non-traumatic conditions, and those without a foreign body.

Conclusion: Our study highlights the predominance of non-emergent consultations among ophthalmologic cases. It underscores the need for improved triage protocols to optimize consultations. Further research is required to enhance ophthalmologic case management and patient referral systems to optimize emergency care resources.

Keywords: Emergency Department; Ophthalmology; Admission; Consultation; Hospitalization

Amaç: Üçüncü basamak bir hastanenin acil servisine oftalmolojik şikayetlerle başvuran hastalar için yapılan konsültasyonların özellikleri, hastaların demografik bilgileri ve hastaneye yatış sebeplerinin değerlendirilmesidir.

Gereç ve Yöntem: Bu retrospektif çalışmaya oküler şikayetleri olan 3617 hasta dahil edildi. Hastalar Ağustos 2021 ve Ağustos 2022 tarihleri arasında İstanbul'da üçüncü basamak bir acil servise başvurdu. Acil oftalmolojik konsültasyonları değerlendirmek için hastanenin otomasyon sistemi kullanıldı.

Bulgular: Hastaların ortalama yaşı 42,17 ± 16,60 yıl olup, %66,8'i erkekti. Başvuruların çoğu (%63,9) mesai saatleri dışında gerçekleşti. Bunların 1642'si (%45,4) travma nedeniyle başvurdu. Hastaların 2419'unda (%66.9) göz içi yabancı cisim saptandı. Travma dışında konjonktivit (%26,6), subkonjonktival hemoraji (%8,9) ve blefarit (%3,3) en yaygın tanılar idi. Başvuran hastaların 91'i (%2,5) göz hastalıkları servisine yatırıldı. Yaşlı hastalarda, travma dışı yaralanması olanlarda ve yabancı cisim bulunmayanlarda göz hastalıkları servisine yatış oranı daha yüksekti.

Sonuç: Çalışmamız, konsülte edilen oftalmolojik vakalardaki acil olmayan konsültasyonların baskınlığını vurgulamaktadır. Konsültasyonları optimize etmek için triyaj protokollerine olan ihtiyacı vurgulamaktadır. Acil durum kaynaklarını daha iyi kullanabilmek için oftalmolojik vakaları yönetme ve hasta sevk sistemlerini geliştirme konusunda.daha fazla araştırmaya ihtiyaç vardır.

Anahtar Kelimeler: Acil Servis; Oftalmoloji; Başvuru; Konsültasyon; Hastaneye Yatış

Corresponding Author: Serap Karaca **e-mail:** dr.serap44@gmail.com
Received: 3 February 2025 **Accepted:** 16 April 2025 **DOI:** 10.33716/bmedj.1632610

INTRODUCTION

Ophthalmological complaints account for approximately 1–6% of emergency department (ED) visits (Jafari et al., 2012). Given that the anamnesis and physical examination of ophthalmological patients directly influence diagnostic and treatment decisions, the initial assessment in the ED setting holds critical importance. Emergency physicians must be able to distinguish urgent ophthalmological conditions that may lead to rapid visual function loss from other ocular disorders and promptly refer such cases to an ophthalmologist (Dağ et al., 2024). While some ophthalmic emergencies require treatment within hours, others primarily cause symptomatic discomfort.

In our country, the number of ED visits is steadily increasing. Despite limited resources both during and outside working hours, EDs continue to provide effective and high-quality healthcare services. However, the proportion of true emergencies, including ophthalmological cases, remains relatively low within the total number of admissions (Dağ et al., 2024). Therefore, ensuring an efficient triage system to direct only patients with genuine emergencies to the appropriate departments is of great importance. Such an approach allows for the optimal allocation of time and resources to critical cases (Stagg et al., 2017).

In this context, emergency physicians must be well-versed in the evaluation and management of ophthalmological complaints. Early diagnosis and appropriate referral play a crucial role in preventing permanent vision loss. This study aims to determine the demographic characteristics of patients who presented to the ophthalmology department or required ophthalmological consultation in the emergency setting of our hospital. The findings of this study are expected to provide valuable data for improving the approach to ophthalmological cases in the ED and enhancing the overall efficiency of healthcare services.

MATERIALS AND METHODS

This retrospective study included 3,617 patients who presented to the tertiary emergency department (ED) between August 1, 2021, and August 1, 2022. The study was conducted following approval from the ethics committee (Approval number: 2022/0611).

Inclusion Criteria:

- Patients presenting with any ocular symptoms.
- Patients requiring ophthalmology consultation for ocular diseases.

Exclusion Criteria:

- Patients admitted to the ophthalmology department but subsequently hospitalized in other departments or intensive care units.

Emergency ophthalmology consultations were assessed using the hospital's automation system **(**Nucleus Medical Information System, Monad Software and Consulting**).** The following data were recorded for each patient:

- Laterality (involvement of one or both eyes),
- Presence of foreign bodies,
- Trauma-related cases and occupational accidents,
- Admission timing (during or outside working hours),
- Additional consultations,
- Final diagnosis,
- Hospitalization status.

This structured approach ensures comprehensive data collection and facilitates an in-depth analysis of ophthalmological emergencies in the ED setting.

Statistical analysis and ethical aspects

The data were analyzed using IBM SPSS Statistics 23© software. Descriptive statistics were expressed as frequency (n) and percentage (%) for categorical variables, while numerical

variables were presented as mean ± standard deviation (minimum–maximum). The Kolmogorov-Smirnov test was employed to assess the normality of data distribution. For comparisons between two independent groups where the normality assumption was not met, the Mann-Whitney U test was utilized. The relationships between independent categorical variables were analyzed using the Pearson Chi-square test and Fisher's exact test, as appropriate. This statistical approach ensures a rigorous and reliable analysis of the collected data, allowing for valid interpretations of ophthalmological emergency presentations.

RESULTS

A total of 3,617 patients were included in this study, with a mean age of 42.17 ± 16.60 years (range: 6–99 years). Among these, 2,416 patients (66.8%) were male. The majority of patients (2,312; 63.9%) presented outside of working hours. Trauma-related admissions accounted for 1,642 patients (45.4%), while 105 patients (2.9%) presented due to occupational accidents. A total of 91 patients (2.5%) required hospitalization in the ophthalmology department. Additional consultations were not required for 3,349 patients (92.6%). Intraocular foreign bodies were detected in 2,419 patients (66.9%), while bilateral involvement was noted in 233 patients (6.4%) (Table 1).

Hospitalization in the ophthalmology department was found to be statistically significantly higher among older patients, non-traumatic cases, and patients without intraocular foreign bodies (Table 2).

Table 1. General characteristics of eye consultations

Variables	n (%), mean ± SD
Age(year)	42.17±16.60 (6-99)
Gender	
Female	1201 (33.2)
Male	2416 (66.8)
Admission time	
Within working hours	1305 (36.1)
Out of working hours	2312 (63.9)
Trauma	
Yes	1642 (45.4)
Occupational accident	
Yes	105 (2.9)
Other eye involvement	
Yes	233 (6.4)
Presence of Foreign body	
Yes	2419 (66.9)
Additional consultation	
No	3349 (92.6)
Non-traumatic eye diseases	
Conjunctivitis	525 (26.6)
Chalazion	3 (0.2)
Subconjunctival hemorrhage	21 (1.1)
Blepharitis	176 (8.9)
Scleritis	66 (3.3)
Keratitis	36 (1.8)
Retinal detachment	15 (0.8)
Uveitis	42 (2.1)
None	1080 (54.8)
Outcome	
Admitted	91 (2.5)
Discharged	3526 (97.5)

	Admission to the eye service n (%)/ Mean ± SD/Median (IQR)		p
	Yes (n=91)	No(n=3526)	value
Age	53(45-68)	40 (28-52)	**<0.001***
Gender			
Female	39 (3.2)	1162 (96.8)	
Male	52 (2.2)	2364 (97.8)	0.055**
Admission time			
Within working hours	41 (3.1)	1264 (96.9)	
Out of working hours	50 (2.2)	2262 (97.8)	0.071**
Trauma			
Yes	25 (1.5)	1617 (98.5)	
No	66 (3.3)	1909 (96.7)	**<0.001****
Occupational accident			
Yes	4 (3.8)	101 (96.2)	
No	87 (2.5)	3425 (97.5)	0.337***
Other eye involvement			
Yes	5 (2.1)	228 (97.9)	
No	86 (2.5)	3298 (97.5)	0.709**
Presence of Foreign body			
Yes	8 (0.7)	1190 (99.3)	
No	83 (3.4)	2336 (96.4)	**<0.001**
Additional consultation			
Yes	8 (3)	260 (97)	
No	83 (2.5)	3266 (92.5)	0.610

DISCUSSION

This study presents the characteristics of patients presenting with ocular complaints to a tertiary care ED. The rate of admissions due to traumatic ocular emergencies was 45.4%. Among non-traumatic ocular emergencies, the most common diagnoses were conjunctivitis (26.6%), subconjunctival hemorrhage (8.9%), and blepharitis (3.3%). The presence of a foreign body was the most frequent complaint, accounting for 66.9% of cases. In a cohort study conducted in the United States of America (USA), corneal abrasions (13.7%) and foreign bodies in the external eye (7.5%) were the most common presentations in the ED (Channa et al., 2016).

In a retrospective study conducted by Alshammari et al. analyzing records from 2019 to 2023, conjunctival disorders were identified as the most common ocular emergency, comprising 29.8% of cases (Alshammari et al., 2024). Similarly, a prospective study by Sridhar et al. from 2010 to 2014, involving 5323 patients, reported viral conjunctivitis as the most frequent diagnosis (8.7%), followed by dry eye (6.6%) and corneal abrasion (6.6%) (Sridhar et al., 2018).

In Lebanon, a study conducted in 2012 found that the most common ocular findings in EDs were conjunctivitis (31.8%), subconjunctival hemorrhage (27.4%), and keratitis (6.6%) (Salti et al., 2018). In Saudi Arabia, a study aimed to determine the prevalence and various ocular diagnoses in patients presenting to ED. Among 868 patients, conjunctivitis was the most common diagnosis, affecting 282 individuals (32.5%), followed by dry eye (18.0%) and eyelid infections (12.0%) (Alabbasi et al., 2017). These findings are consistent with the frequent diagnosis of conjunctivitis observed in our study.

Another study from Saudi Arabia investigated the characteristics of patients presenting to ED and the patterns of ocular emergency cases.

Among 1412 patients, trauma was the most common diagnosis (27%), followed by conjunctivitis (14.9%) and eyelid and lacrimal system disorders (9.4%) (Alotaibi et al., 2011). In our study, the rate of admissions due to traumatic eye injuries was found to be 45.4%.

In a study conducted by Nanji et al. involving 774,257 patients, foreign bodies were reported in 16% of patients, conjunctivitis in 13.8%, corneal/conjunctival abrasions in 13.4%, and styes in 8.1%. More than 50% of the visits were related to corneal and external diseases, while complaints regarding the retina, neuro-ophthalmology, and glaucoma accounted for less than 10% of the visits. These findings are consistent with previous studies that suggest anterior segment pathologies lead to more frequent emergency visits (Nanji et al., 2023).

In ophthalmology, the timely diagnosis and management of vision-threatening ocular conditions such as trauma, infections, and retinal detachment play a vital role in determining patients' visual outcomes (Hsu et al., 2020). The provision of ocular care in emergency settings is of critical importance. A study conducted in the United States reported that nearly half of all eye-related ED visits were not associated with true emergencies (Channa et al., 2016). In a study by Kang, which evaluated 5422 patients, 21.5% of the cases were deemed non-emergent (Kang et al., 2020). Another study reported that only 25% of patients presenting to the ED had urgent medical conditions (Choi et al., 2006). Similarly, in the study by Sridhar et al., more than one-third of visits were non-urgent, with these visits being more common among women, individuals over 65 years old, and those with complaints persisting for more than a week (Sridhar et al., 2018).

In a nationwide study in the U.S. by Channa et al., analyzing 11,929,955 ED visits, 54.2% of patients were male with an average age of 31 years. The most common diagnoses were corneal erosion (13.7%), foreign bodies in the external eye (7.5%), conjunctivitis (28%), subconjunctival hemorrhage (3%), and stye (3.8%). Since these conditions do not typically lead to visual impairment, they could be evaluated in eye clinics rather than ED (Channa et al., 2016). These studies highlight the misuse of emergency services and the unnecessary burden placed on these facilities. In our study, we did not classify patients as emergent or non-emergent. However, the predominance of non-emergent diagnoses among our cases aligns with these findings.

In the study by Jafari et al., the mean age of 2380 patients presenting to the ED was 33.2±16.8 years, with 75.6% of patients being male. Among the referrals, 9.5% were non-emergent, most commonly due to work-related injuries (30.3%). Additionally, 24.9% of patients were referred for non-urgent reasons (Jafari et al., 2012). In a study by Dag et al., 1.5% of patients presenting to the ED had ocular complaints. Of those referred to the ophthalmology emergency clinic, 27% were found not to have an urgent eye condition. This may indicate that emergency department physicians need to increase their knowledge and experience of ophthalmological diseases (Dag et al., 2024).

In our study, foreign bodies were found in approximately 66.9% of the patients who requested consultation. However, we found that the presence of foreign body was not associated with ophthalmology referral. It includes removal of the foreign body with a biomicroscope. It has been reported that foreign bodies pose a 6.5% risk of endophthalmitis and should be removed within the first 24 hours (Bourke et al., 2021). In our study, 8.9% of the patients were diagnosed with blepharitis, 3.3% with scleritis, and 1.8% with keratitis. These conditions, which present with red eye and decreased visual acuity, are typically manageable through examination and treatment in primary care or outpatient ophthalmology clinics rather than ED. In the study by Alabbasi et al. among 868 patients presenting to the ED, the most common diagnoses were conjunctivitis, dry eye, and nasolacrimal duct obstruction, indicating that non-urgent cases frequently seek emergency care. Managing such cases at the primary care level could significantly reduce the burden on ED

(Alabbasi et al., 2017). In our study, 66.8% of patients presenting to the ED were male, consistent with findings from other studies where the male population predominated (Channa et al., 2016; Jafari et al., 2012; Vaziri et al., 2016). We attribute this trend to the higher incidence of trauma and work-related injuries among men.

In our study, we found that the most common non-traumatic eye emergencies can be diagnosed and treated by the emergency physician. However, the core education curriculum of the Emergency Medicine Residency programme includes ophthalmological emergencies including skills such as foreign body removal, digital intraocular pressure measurement, and lateral canthotomy. We believe that emergency medicine specialists should evaluate and improve their self-efficacy in these skills.

Limitations

This study has some limitations. Since the diagnoses were obtained from the hospital automation system, detailed eye examination findings of the patients were not available. In particular, it was not possible to clearly distinguish which conditions caused decreased visual acuity. Furthermore, since the doctors examining patients in the ED work in shifts, the emergency evaluation and referral of cases to ophthalmology is not standardized.

CONCLUSION

In conclusion, the rate of emergency department visits and consultations was higher in non-traumatic eyes. Further studies in a larger population are needed.

Authorship Contributions: SK, VO, FSD collected the data and wrote the main manuscript. VO, EA, MC analyzed and interpreted the patient data. SK, VO, OI designed the work and substantively revised the article. All authors read and approved the final manuscript.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest: The authors have no conflicts of interest to declare.

Ethics approval and consent to participate: Ethical approval for this study was obtained from İstanbul Medeniyet University Göztepe Research and training hospital clinical research ethics committee on 19.10.2022 Decision number: 2022/0611

The study was conducted in line with the principles of the "Helsinki Declaration."

Availability of Data and Materials: The datasets from the current study can be obtained on request from the corresponding author.

REFERENCES

Alabbasi, O. M., Al-Barry, M., Albasri, R. F., Khashim, H. F., Aloufi, M. M., Abdulaal, M. F., Alsaidalany, D. W., Alahmadi, A. S., Habeeb, H., & Aalam, W. A. (2017). Patterns of ophthalmic emergencies presenting to a referral hospital in Medina City, Saudi Arabia. *Saudi J Ophthalmol*, *31*(4), 243-246. https://doi.org/10.1016/j.sjopt.2016.03.001

Alotaibi, A. G., Osman, E. A., Allam, K. H., Abdel-Rahim, A. M., & Abu-Amero, K. K. (2011). One month outcome of ocular related emergencies in a tertiary hospital in Central Saudi Arabia. *Saudi Med J*, *32*(12), 1256-1260. https://www.ncbi.nlm.nih.gov/pubmed/22159380

Alshammari, A., Alqadhy, N., Gharawi, A., Alqahtani, B., Alagha, S., AlShenaiber, M., Almalik, F., & Alshibani, A. (2024). Characteristics of ocular-related emergency department visits: Five-years data from a tertiary care center in Riyadh, Saudi Arabia. *PLoS One*, *19*(11), e0310179. https://doi.org/10.1371/journal.pone.0310179

Bourke, L., Bourke, E., Cullinane, A., O'Connell, E., & Idrees, Z. (2021). Clinical outcomes and epidemiology of intraocular foreign body injuries in Cork University Hospital, Ireland: an 11-year review. *Ir J Med Sci*, *190*(3), 1225-1230. https://doi.org/10.1007/s11845-020-02443-9

Channa, R., Zafar, S. N., Canner, J. K., Haring, R. S., Schneider, E. B., & Friedman, D. S. (2016). Epidemiology of Eye-Related Emergency Department Visits. *JAMA Ophthalmol*, *134*(3), 312-319. https://doi.org/10.1001/jamaophthalmol.2015.5778

Choi, Y. F., Wong, T. W., & Lau, C. C. (2006). Triage rapid initial assessment by doctor (TRIAD) improves waiting time and processing time of the emergency department. *Emerg Med J*, *23*(4), 262-265; discussion 262-265. https://doi.org/10.1136/emj.2005.025254

Dag, Y., Aydin, S., & Kumantas, E. (2024). The profile of patients attending to the general emergency department with ocular complaints within the last year: is it a true ocular emergency? *BMC Ophthalmol*, *24*(1), 330. https://doi.org/10.1186/s12886-024-03608-1

Hsu, M. H., Hsu, C. A., Hsiao, S. H., Chu, D., & Yen, J. C. (2020). Utilization of emergency ophthalmology services in Taiwan: a nationwide population study. *Sci Rep*, *10*(1), 17703. https://doi.org/10.1038/s41598-020-74815-1

Jafari, A. K., Bozorgui, S., Shahverdi, N., Ameri, A., Akbari, M. R., & Salmasian, H. (2012). Different causes of referral to ophthalmology emergency room. *J Emerg Trauma Shock*, *5*(1), 16-22. https://doi.org/10.4103/0974-2700.93104

Kang, E. Y., Tai, W. C., Lin, J. Y., Huang, C. J., Yeh, P. H., Wu, W. C., Wang, F. L., Liu, L., Lai, C. C., & Chen, K. J. (2020). Eye-related Emergency Department Visits with Ophthalmology Consultation in Taiwan: Visual Acuity as an Indicator of Ocular Emergency. *Sci Rep*, *10*(1), 982. https://doi.org/10.1038/s41598-020-57804-2

Nanji, K., Gulamhusein, H., Jindani, Y., Hamilton, D., & Sabri, K. (2023). Profile of eye-related emergency department visits in Ontario - a Canadian perspective. *BMC Ophthalmol*, *23*(1), 305. https://doi.org/10.1186/s12886-023-02999-x

Salti, H. I., Mehanna, C. J., Abiad, B., Ghazi, N., Raad, S., Barikian, A., Haddad, R., Ashkar, A., Harmouche, E., Zaghrini, E., & Mufarrij, A. (2018). Changing Trends in Eye-Related Complaints Presenting to the Emergency Department in Beirut, Lebanon, over 15 Years. *J Ophthalmol*, *2018*, 4739865. https://doi.org/10.1155/2018/4739865

Sridhar, J., Isom, R. F., Schiffman, J. C., Ajuria, L., Huang, L. C., Gologorsky, D., & Banta, J. T. (2018). Utilization of Ophthalmology-Specific Emergency Department Services. *Semin Ophthalmol*, *33*(2), 185-190. https://doi.org/10.1080/08820538.2016.1188129

Stagg, B. C., Shah, M. M., Talwar, N., Padovani-Claudio, D. A., Woodward, M. A., & Stein, J. D. (2017). Factors Affecting Visits to the Emergency Department for Urgent and Nonurgent Ocular Conditions. *Ophthalmology*, *124*(5), 720-729. https://doi.org/10.1016/j.ophtha.2016.12.039

Vaziri, K., Schwartz, S. G., Flynn, H. W., Jr., Kishor, K. S., & Moshfeghi, A. A. (2016). Eye-related Emergency Department Visits in the United States, 2010. *Ophthalmology*, *123*(4), 917-919. https://doi.org/10.1016/j.ophtha.2015.10.032

Emotional Eating and Mindful Eating in Accordance with Stakeholder Opinions of Dietitians, Psychologists and Psychological Counselors

Diyetisyen, Psikolog ve Psikolojik Danışmanların Paydaş Görüşleri Doğrultusunda Duygusal Yeme ve Farkındalıkla Yeme

Aysu BAYRAM SAPTIR[1], Tuğba Seda ÇOLAK TURAN[1]

[1]Düzce University, Faculty of Education, Department of Guidance and Psychological Counseling, Düzce, Türkiye.

Objective: This study aims to examine in depth the relationship between emotional eating and mindful eating in light of the views of professionals from different disciplines, including dietitians, psychological counselors, and psychologists.

Materials and Method: The research was designed using the phenomenological design, one of the qualitative research methods. The study group consisted of 32 participants. Data were collected through a semi-structured interview form developed by the researcher, which included 17 open-ended questions.

Results: Participants generally associated emotional eating with factors such as stress, loneliness, and low self-esteem. It was stated that an increase in mindful eating skills helps individuals recognize their emotional responses, reduces impulsivity, and increases awareness of bodily signals. Participants also emphasized that a mindfulness-based intervention program could be effective in achieving sustainable weight control, breaking the cycle of emotional eating, and fostering healthy eating habits.

Conclusion: Mindful eating practices appear to be an important strategy for modifying emotional eating behavior. Participants highlighted the need for the development of such programs in Turkey. This study draws attention to the significance of interdisciplinary collaboration in interventions aimed at addressing emotional eating.

Keywords: Emotional Eating; Mindful Eating; Phenomenological Research; Stakeholder View

Amaç: Bu çalışmanın amacı, farklı disiplinlerden gelen profesyonellerin (diyetisyenler, psikolojik danışmanlar ve psikologlar) görüşleri ışığında duygusal yeme ve bilinçli yeme arasındaki ilişkiyi derinlemesine incelemektir.

Yöntem: Araştırma, nitel araştırma yöntemlerinden fenomenolojik desen ile tasarlanmıştır. Çalışma grubunu 32 katılımcı oluşturmuştur. Veriler, araştırmacı tarafından geliştirilen 17 açık uçlu sorudan oluşan yarı yapılandırılmış görüşme formu aracılığıyla toplanmıştır.

Bulgular: Katılımcılar, duygusal yemeyi genellikle stres, yalnızlık ve düşük benlik saygısı gibi faktörlerle ilişkilendirmiştir. Farkındalıkla yeme becerisinin artmasının, bireylerin duygusal tepkilerini tanımasını, impulsiviteyi azaltmasını ve bedensel sinyalleri fark etmesini sağladığı belirtilmiştir. Katılımcılar, bilinçli farkındalığa dayalı bir müdahale programının sürdürülebilir kilo kontrolü, duygusal yeme döngüsünden çıkma ve sağlıklı yeme alışkanlıkları kazanma açısından etkili olabileceğini ifade etmişlerdir.

Sonuç: Farkındalıkla yeme uygulamalarının bu davranışı değiştirmede önemli bir strateji olduğu görülmektedir. Katılımcılar, Türkiye'de bu alanda geliştirilecek programlara olan ihtiyacı vurgulamıştır. Bu çalışma, duygusal yemeye yönelik müdahalelerde disiplinler arası iş birliğinin önemine dikkat çekmektedir.

Anahtar Kelimeler: Duygusal Yeme; Farkındalıklı Yeme; Fenomenolojik Araştırma; Paydaş Görüşü

Corresponding Author: Aysu Bayram Saptır **e-mail:** aysubayrams@gmail.com
Received: 5 February 2025 **Accepted:** 19 March 2025 **DOI:** 10.33716/bmedj.1633691

INTRODUCTION

Nutrition is one of the most vital elements to lead a healthy life, and many studies can be found on its direct correlation to emotions (Christensen and Pettijohn, 2001; Eldredge and Agras, 1996; Macht, 2008; Oliver et al., 2000; Rotenberg and Flood, 1999; Willner et al., 1998). Emotional eating is a way for some individuals to overcome the emotions and problems experienced. The research has revealed that daily emotional states can often impact food consumption (Macht and Simons, 2000; Geliebter and Aversa, 2003). It is apparent that emotional eating has seen an increase after the Covid-19 period in particular (Al-Musharaf, 2020; Moro et al., 2022) and that emotional eating has been one of the leading sources of significant public health issues such as obesity (Nguyen-Rodriquez et al., 2008; Ozier et al., 2008), inconsistent eating time (Danner et al., 2012), and social anxiety disorders (Dalrymple et al., 2017). It is believed that studies on this issue are needed to take precautions against problems caused by emotional eating in the context of health and identify the causality underlying the concept of emotional eating. In connection, the following sections attempt to describe the concept of emotional eating by addressing certain emotional, situational, and psychological determiners of emotional eating.

Determinants of Emotional Eating

Emotional eating is defined as the tendency to eat in response to positive (e.g., happiness, joy, elation) or negative emotional states (e.g., depression, anxiety, stress) in response to physiological needs (Arnow et al., 1995; Heatherton and Baumeister, 1991). The determinants of emotional eating are grouped according to the Determinants of Eating and Nutrition framework, a model developed by Symmank et al. (2017). According to this model, individual determinants of emotional eating are classified as psychological, situational, or biological factors. Psychological determinants refer to fairly long-lasting individual difference characteristics related to self-regulation, motivation, and strategies to regulate eating. Situational factors describe a given individual's current individual circumstances, which are transient rather than fixed in nature. Finally, biological determinants encompass individual differences in physiological characteristics. The next section presents a synthesis of the most common findings in each of the three categories.

Psychological Determinants

Previous research has identified three important psychological determinants in explaining emotional eating. According to the first determinant, an individual's reward sensitivity influences food choice in response to negative emotional states. According to Gray's theory of reinforcement sensitivity (1987), the behavioral activation system, a central brain system, triggers an approach behavior motivated by reward cues. In emotional eating, reward-sensitive individuals learn that palatable food has a mood-regulating effect when they are in a negative mood (Davis et al., 2004; Franken and Muris, 2005). The underlying neurobiological adaptations are proposed to be similar to those of addictive substances. Accordingly, the existing literature suggests a positive relationship between reward sensitivity and emotional eating (Davis et al., 2007; Davis et al., 2004).

Second, previous research has identified cognitive reappraisal as a psychological determinant of emotional eating (Evers et al., 2010; Kemp and Kopp, 2011). According to this, emotional eating, as assessed by the mood manipulation-eating behavior link, is triggered by a lack of cognitive reappraisal (Evers et al., 2010; Kemp and Kopp, 2011). The underlying assumption is that when in a negative mood, individuals with low levels of cognitive reappraisal prefer food to regulate mood as an unhealthy defense mechanism (Kemp and Kopp, 2011).

Finally, previous research considers an individual's impulsivity as a psychological determinant of emotional eating. While impulsivity has traditionally been understood as

a pleasure-oriented behavior, recent research suggests a relationship with different cognitive control subsystems and thus describes it as "a product of impaired cognitive control" (Dalley et al., 2011; Huang et al., 2017). Impulsivity is known to stimulate emotional eating more. Thus, high impulsivity triggers unhealthy food choices and overeating in response to negative moods. Impulsive individuals are generally thought to be prone to tasty and unhealthy food choices based on taste preferences rather than healthy choices (Jasinska et al., 2012).

Situational Determinants

Emotional eating has two main situational determinants. The first is the stress level of individuals (Moschis, 2007). It is known that stressed people are more prone to unhealthy eating behaviors in response to negative affect (Michels et al., 2012; Wallis and Hetherington, 2009). One possible explanation for this relationship is that emotional eaters physiologically perceive stress as hunger in their bodies and use food to cope with this situation (Adam and Epel, 2007; Michels et al., 2012).

The second situational determinant is the individual's current hunger level, which reflects a mix of homeostatic and hedonic hunger. Homeostatic hunger develops after a period of energy deprivation. This metabolic state not only activates cognitive functions for food intake and energy balance but also triggers reward sensitization. This suggests that homeostatic hunger has an impact on sensory pathways and cortico-limbic structures central to the processing of emotions (Leisman and Melillo, 2013; Shin et al., 2009). Hedonic hunger refers to the tendency to have general thoughts, feelings, and urges about food without any biological hunger, which makes people particularly sensitive to the pleasurable properties of food (Witt and Lowe, 2014). Considering these characteristics, a mixture of both hunger states was found to increase unhealthy food choices among individuals in negative moods (Lowe and Butryn, 2007; Lowe and Maycock, 1988).

Biological Determinants

Biological determinants of emotional eating are categorized under two headings. The first is the weight status. Weight has been found to be a determining factor in regulating the negative affect through eating (Evers et al., 2010; Geliebter and Aversa, 2003; Konttinen et al., 2010). It has been reported in the literature that people who are overweight eat more compared to average-weight individuals when feeling negative emotions. (Geliebter and Aversa, 2003). This can be associated with the observation that overweight individuals are more susceptible to emotions in comparison to those with normal weight (Lowe and Fisher, 1983).

The second biological determinant is gender. Research investigating emotional eating shows that women are more likely than men to make unhealthy food choices to reduce negative emotions (Christensen and Pettijohn, 2001; Eddy et al., 2007; Lafay et al., 2001; Christensen and Brooks, 2006). The reasons for this behavioral difference are mostly based on the intensity and frequency of experiencing negative moods related to gender. It is known that women experience negative moods more frequently due to their genetic and biological predispositions (Fujita et al., 1991; Nolen-Hoeksema, 1987). Women experience depression and anxiety disorders at higher rates compared to men. This can be attributed to the hormonal changes they experience during menstrual cycles (World Health Organization, 2002).

Emotional Eating and Mindful Eating

Theories explaining that emotional eating occurs in response to feelings of depression and anxiety hypothesize that emotional eaters choose to consume food to regulate stress and/or negative emotions (Stice et al., 2001). According to models of affect regulation (see Hawkins and Clement, 1984; Telch, 1997), emotional eaters learn that consuming food reduces negative states. Escape theory suggests that emotional eating distracts the person from disturbing stimuli or events (Parkinson and Totterdell, 1999), thus providing an escape

from negative self-awareness and ego-threatening information (Heatherton and Baumeister, 1991; Spoor et al., 2007). Therefore, it can be argued that it is not only the experience of negative emotion that triggers emotional eating. In addition, these individuals also experience difficulties such as the inability to draw attention to, accept, and express the negative emotional experiences at that moment.

The ability to pay attention to one's emotional reactions, perceptual experiences, and bodily sensations points to an important aspect of mindfulness, which includes an attitude of openness and acceptance toward one's emotional or physical experience (Creswell, 2017; Quaglia et al., 2016). Trait mindfulness has been positively associated with better emotion regulation and lower emotional reactivity (Pearson et al., 2015). Consequently, high mindfulness predicts more adaptive physiological and emotional reactivity after negative experiences (Fogart et al., 2015). Mindfulness improves the ability to observe and accept unpleasant experiences without avoiding them (Arch and Craske, 2006; Bieling et al., 2012; Fogarty et al., 2015). Studies on mindfulness show that mindfulness is negatively associated with weight gain (Mantzios et al., 2015) and overweight and obesity (Camilleri et al., 2015). People with unhealthy eating behaviors were found to rely more on hunger and satiety cues, and their impulsivity decreased after the 6-week mindfulness intervention.

Considering the relationship between mindfulness and emotional eating, the interactions of these two variables with each other are worthy of research. From this point of view, interviews were conducted with dietitians, psychological counselors, and psychologists who know the concepts of emotional eating and mindful eating. Dietitians are a professional group that knows the nutritional histories of emotional eating clients. Therefore, they are in close contact and intertwined with the profile, showing emotional eating behavior. Indeed, 'emotional eating' behavior is among dietitians' most common inhibitors in their clients' weight management (Aboueid et al., 2019). Psychological counselors and psychologists are thought to be two professional groups that address the underlying causes of the dynamics of emotional eating behavior. Again, the holistic nutrition approach, which has been on the agenda recently, advocates a diet that sees nutrition as a whole of mind, body, and spirit and aims to keep these three elements in balance (Aydeniz-Güneşer and Kahraman, 2023). Therefore, it is thought that the experiential backgrounds of these three professional groups regarding emotionally eating clients are important in elucidating the causes and consequences of this behavior.

This study aims to examine the relationship between emotional eating and mindful eating based on the experiences of dietitians, psychologists, and psychological counselors, providing a more comprehensive understanding of the psychological, biological, and situational factors underlying emotional eating behavior. The limited number of studies in the literature that address the interaction between emotional eating and mindful eating from the perspectives of experts from different disciplines makes this research unique and fills a significant gap in the literature by offering a multidisciplinary perspective on strategies for coping with emotional eating.

MATERIALS AND METHODS

This section presents details regarding the research model, the sample, data collection tools, data collection procedures, and data analysis.

Research Model

This study was designed based on the phenomenological research method, which is one of the qualitative research designs. Phenomenological research design is a method used to illuminate phenomena that we are aware of but do not have an in-depth and detailed understanding (Limberg, 2008). In phenomenological research, data sources consist of individuals or groups who have experienced the phenomenon that the research focuses on and can reflect this phenomenon (Yıldırım and Şimşek, 2018). The phenomenon examined in the study is the stakeholder views

of dietitians on the concepts of emotional eating and mindful eating. Opinions on the nature, advantages and disadvantages, causes and consequences of emotional eating were consulted and tried to be examined in depth. The data collection tool of the research, which was conducted using a phenomenological design, was the interview method. Through the interview method, opinions and thoughts are conveyed verbally within the framework of the phenomenon and recorded by the researcher (Limberg, 2008).

Research Sample

The research sample comprised 32 participants from three professional groups (dietitian, psychological counselor, and psychologist). While forming the participants, different ways were tried to reach people who are experts and knowledgeable in emotional eating and mindful eating. Firstly, dietitians, psychological counselors, and psychologists who had previously worked on the concepts of emotional eating or mindful eating were reached in the Council of Higher Education (YÖK) Thesis Database. Secondly, articles written on emotional eating and mindful eating were scanned through the Google Scholar search engine, and the authors were examined. The authors identified here were informed about the content of the subject and requested an interview. Interviews were conducted with those who volunteered, and the sample was expanded through their references. The growth of the sample was ensured by the snowball sampling method which included the people who met the criteria for participation in the study.

Research participation criteria were as follows: having knowledge about the concepts of emotional eating and mindful eating, and distinguishing between emotional eating and physical eating in clinical experiences for clients with emotional eating problems. The snowball sampling method and the criteria set led to some limitations. These limitations are the inability to reach enough participants and the insufficient level of mastery of the concepts by participants with 10 years of experience or more. This was because emotional eating and mindful eating are relatively new concepts developed in relation to the accumulation of knowledge about the effect of emotions on human eating behaviors (Macht, 2008). The level of mastery of 10 years or more of professional experience in these newly developing concepts was accepted as a participant exclusion criterion. Table 1 below provides information about all participants.

Table 1. Demographic Information of Dietitians, Psychological Counselors, and Psychologists

Profession	Variable	Category	n	%
Dietitian	Type of School	Private University	10	66.6
		State University	5	33.3
	Work Experience	0-5 Years	8	53.3
		5-10 Years	7	46.6
	Affiliation	Private	5	33.3
		State	10	66.6
	Degree	Undergraduate	7	46.6
		MA	8	53.3
	Gender	Female	12	80
		Male	3	20
Psychological Counselor	Type of School	Private University	5	55.5
		State University	4	44.4
	Affiliation	Private	2	22.2
		State	7	77.7
	Degree	Undergraduate	1	11.1
		MA	6	66.6
		Doctorate	2	22.2
	Gender	Female	6	66.6
		Male	3	33.3

Psychologist	Type of School	Private University	5	62.5
		State University	3	37.5
	Affiliation	Private	7	87.5
		State	1	12.5
	Degree	Undergraduate	1	12.5
		MA	5	62.5
		Doctorate	2	25
	Gender	Female	4	50
		Male	4	50

When Table 1 is examined for dietitians, 10 (66.6%) of the participants graduated from private university and 5 (33.3%) from public university. The duration of employment was 0-5 years for 8 (53.3%) and 5-10 years for 7 (46.6%). When we look at the institutions where they work, 5 (33.3%) are in the private sector and 10 (66.6%) are in the state. The educational level of 7 (46.6%) were undergraduate and 8 (53.3%) were graduate. Regarding gender, it is known that 12 (80%) are female and 3 (20%) are male.

Regarding psychological counselors, there are 5 (55.5%) graduates from private universities and 4 (44.4%) graduates from state universities. Considering the institution of employment, 2 (22.2%) are private and 7 (77.7%) are public. The level of education is a bachelor's degree for 1 (11.1%), a master's degree for 6 (66.6%), and a doctorate for 2 (22.2%). Gender of 6 (66.6%) were female and 3 (33.3%) were male.

In terms of psychologists, there are 5 (62.5%) graduates from private universities and 3 (37.5%) graduates from state universities. Regarding the institution of employment, 7 (87.5%) were in the private sector and 1 (12.5%) in the public sector. The level of education is the bachelor's degree for 1 (12.5%), master's degree for 5 (62.5%) and doctorate for 2 (25%). 4 (50%) of them are female and 4 (50%) are male.

Data Collection Tools

The research data were collected through a semi-structured interview form consisting of open-ended questions developed by the researcher within the framework of the literature. This form consists of 17 open-ended questions and is divided into two sections. The first part includes questions about emotional eating and mindful eating and the second includes questions about a mindfulness-based emotional eating reduction program. The opinions of academicians teaching in the departments of dietetics and psychological counseling were consulted for the construct, content, and language validity of the questions in the interview form. Three professional groups were identified for the pilot interviews of the form questions: dietitian, psychologist, and psychological counselor. Pilot interviews were conducted with two members from each of these professional groups. After the pilot interviews, the research data were collected by finalizing the form consisting of the questions that were in consensus.

Collection and Analysis of the Data

The research data were collected by conducting 30-minute interviews via an online connection at the convenience of the sample group. During the interviews, stakeholders were first informed about the research's purpose, importance, scope, and confidentiality. Afterward, the responses were recorded with the permission of the participants. The recordings were transcribed in a computer environment. Content analysis was used to analyze the data. In the content analysis method, a code pool is created for the answers given to the prepared questions, and a thematization/categorization method is used in accordance with these codes (Yıldırım and Şimsek, 2018). Accordingly, stakeholder opinions were read in detail and first divided into codes, themes, and sub-themes. Preliminary themes were reviewed and organized before defining and naming a final list of themes covering the entire data set. Two

researchers (first and second author) reviewed the codes and themes throughout the analytic process to ensure consensus.

The two researchers who conducted the study agreed on 127 of the 157 codes they identified on the same data and disagreed on 30 codes. Since the consistency between the coders is an indicator of the reliability of the data (Baltacı, 2019), the values for consensus and disagreement were used in Miles and Huberman's (1994) reliability analysis formula below:

Reliability=Number of agreed items / (Agreement + Disagreement) x100

Reliability= 127 /(127+30)x100

Reliability=.80

The value indicating the internal consistency of coding must be at least .80 (Miles and Huberman, 1994). According to this, it was concluded that the data obtained through interviews were reliable on sufficient levels.

RESULTS

The qualitative findings obtained as a result of the interviews with the Dietitian, Psychological Counselor, and Psychologist stakeholders are given in the tables below. The findings include the direct opinions of the participants. The coding of the participant opinions in the findings is as follows: DK1 (dietician female #1), DE1 (dietician male #1); PD1K (psychological counselor female #1), PD1E (psychological counselor male #1); P1K (psychologist female #1), and P1E (psychologist male #1).

Table 2. Opinions on Clients' Knowledge of Emotional Eating and Mindful Eating.

Theme	Code	f
Social Media Awareness	Increased knowledge of emotional eating and mindfulness through social media	5
Awareness Depending Upon Socioeconomic Level	Increase in the level of knowledge as the level of education and economic status increases	4
Partial Awareness and Lack of Coping	Being aware of the impact of emotions on eating, but having difficulty coping with this situation	8
Low Awareness	Hardly existing	7

Regarding the information in Table 2, the knowledge levels of the participants about the concepts are mostly in the categories of partial awareness and inability to cope. Some of the participants' views on the level of knowledge about the concepts are as follows:

"...My clients are generally partially aware of why they break their diets. When they come to the interview that week, they usually say that they cannot make the program because they are going through a difficult period. However, it seems that even if they are aware, they cannot manage the process.'' (D1K)

"I observe that my clients' knowledge of these concepts has increased in the last two years. I attribute this to the pandemic. In this process, people who overeat could not get dietitian support and tried to find solutions to their problematic eating habits through social media.'' (P1K)

"The level of knowledge about the concepts varies depending on educational and economic level. I can say that people with higher levels of education and economic status have a higher level of knowledge about these concepts than others.'' (PD2K)

"Some of my clients, they only know of the names of these concepts. I don't think they have any knowledge about their content.'' (D1E)

Table 3. Opinions Regarding the Characteristics of Emotional Eaters

Theme	Code	f
Personal Determinants	Loneliness	1
	Tendency to blame	2
	Low tolerance of boredom and stressful situations	7
	Negative body image	5
	Negative beliefs toward foods	2
	Feelings of worthlessness-inadequacy	10
	Emotional fluctuations	6
	Lack of control	3
Situational Determinants	Being in the diet cycle	1
	Obsessive addiction to certain foods (carbohydrates)	5

When Table 3 is examined, it is seen that individual determinants of emotional eating behavior are more frequent. Some of the participants' views on the individual determinants of emotional eating are as follows:

"Since these people have a very low tolerance to stress and distress, they have difficulty in complying with their diet in a week when they have a challenging period. " (D8K)

"They usually don't like their bodies. They express that they would feel more valuable if their bodies were the way they want them to be. " (P2K)

"They have difficulty in controlling their emotions, I see that their tolerance for emotional fluctuations is low. " (PD2E)

Some of the participants' views on the situational determinants of emotional eating are as follows:

"My clients of this type have food that they constantly crave and can't stop eating." (D6K)

"My clients who are emotional eaters, especially the desire to consume carbohydrate foods is obsessive in some periods." (D12K)

Table 4. Recommendations Assumed to Be Effective in Dealing with Emotional Eating.

Theme	Code	f
Expert Support	Referral to a psychologist	10
	Referral to a dietitian	6
Self Help	Taking a walk	3
	Self suggestion	5
	Listening to music	1
	Calling a loved one	3
	Drinking a glass or two of water	1
	Playing with an object to occupy the hand	1
	Taking up a hobby	2
	Regular exercise	1
	Keeping journals (about eating habits)	5
	Teaching portion control	3
	Rating on hunger-satiety exploration	1
	Self-compassion practices	1
	Identifying trigger foods	1

Considering the information in Table 4, the suggestions for emotional eating behavior become more frequent in the self-help suggestions dimension. Some of the participants' views on self-help suggestions are as follows:

"They have emotional fluctuations very often. That's why I constantly give motivational speeches to keep them on the diet and I suggest that they talk to themselves in this way." (D10K)

"Before they engage in emotional eating, I want them to create alternative lists that they can do instead. For example, going for a walk, drinking water, doing sports, listening to music." (D7K)

Some of the participants' views on the recommendations for expert support are as follows:

"It is very difficult to solve weight problems with this type of clients in the long term. They are usually in a cycle of gaining and losing weight. We help them change their physical appearance. However, I think these clients need psychological interventions, so I refer them to a psychologist." (D5K)

"I think the underlying problem in emotionally eating clients is psychological, so I refer them to a psychologist." (D9K)

"I think dietitians are experienced in emotional eating, so I usually refer them to a dietitian and I prefer to work with a dietitian." (PD4K)

Table 5. Opinions Regarding the Advantages and Disadvantages of Emotional Eating.

Theme	**Sub-theme**	**Code**	**f**
Disadvantages	Psychological	Depression	15
		Impaired body image	8
		Decreased self-respect	15
	Biological	Obesity	8
		Gastric sleeve surgery	7
		Rapid feeding	9
		Weight gain	7
		Cyclicality in weight gain	6
		Delayed satiety feeling	5
Advantages	Psychological	Balancing the mood	4

When Table 5 is examined, it is seen that the opinions on the disadvantages of emotional eating are more common. Some of the participants' views on the disadvantages of emotional eating are as follows:

"I think that clients who are emotional eaters are prone to depression. I also think that they are dissatisfied with at least one place in their body." (P3E)

"If these clients are not stopped in terms of emotional eating, the last stop will be obesity for them." (D3E)

"I observe that these people have low self-esteem. They cannot maintain a stable weight. In general, they gain and lose weight very often." (PD6K)

Table 6. Opinions Regarding Feelings and Situations Triggering Emotional Eaters.

Theme	Code	f
Situations	Pressure from others (you can't do it, you can't succeed statements)	7
	Rewarding the self with food when weight is lost	6
	Stress from work life	4
	Following a heated argument	2
	Crowded environments	2
	Lack of social support (loneliness)	1
Emotions	Stress	8
	Sadness	6
	Anxiety	2
	Unhappiness	6
	Anger	6
	Perfectionism	4
	Feeling under pressure	7
	Boredom	7
	Loneliness	8
	Regret	5
	Guilt	4

Reviewing Table 6, the statements that negative emotions trigger emotional eating behavior seem to be frequent. Some of the participants' views on the emotional triggers of emotional eating are as follows:

"I observe that they usually eat more frequently due to stress and sadness." (D4K)

"I can say that these clients are prone to anxiety and consume food because they get anxious at the slightest setback. " (P4K)

"It is difficult to say a single triggering emotion for these clients of mine. Because they usually feel negative emotions together. For example, loneliness, guilt, stress, sadness and anger. " (PD5K)

Some of the participants' views on situational triggers of emotional eating are as follows:

"I see that they have no tolerance for the stress and arguments they experience at work. They usually have reasons to break their diets. " (D3K)

"Since they are quite impulsive clients, self-rewarding behaviors are quite frequent. For example, they reward themselves unannounced after losing a certain weight." (D2K)

Table 7. Opinions Regarding Traits Required to Cope With Emotional Eating.

Theme	Code	f
Intrinsic Motivation	Confidence	6
	Awareness of what replaces the food	9
	Saying no	7
	Responsibility	2
	Self-compassion	5
	Respect to body	7
	Coping with impulsivity	6
	Mechanisms to cope with stress	5
	Positive body image	3
	Emotion regulation skill	7
Extrinsic Motivation	Regular Psychotherapy	8
	Social support (spouse, mother, friends, children)	6

When Table 7 is examined, it is seen that intrinsic motivation statements are more frequent among the statements about coping with emotional eating. Some of the participants' views on intrinsic motivation are as follows:

"I think being able to say no would solve most of this problem, because they usually cannot say no to anything they are offered." (D2E)

"Especially their impulsive behavior is quite high. In other words, they can eat food that comes to their mind without thinking about it at that moment. There is almost no gap between their emotions and their eating behaviors. " (P3K)

"If their awareness of the connection between them and food had been developed, they could more easily recognize the meanings they attribute to the food they eat. " (PD3K)

"I wish they had more than one thing, not just one thing. Each of them will definitely have one feature that stands out more, but if they had respect and compassion for themselves and their bodies, they could cope with this situation more easily. " (PD1K)

Some of the participants' views on extrinsic motivation are as follows:

"I think they need a lot of social support because they often experience emotional fluctuations. Especially my clients who are supported by their spouses can cope with this situation more easily. " (P1K)

"They often turn to food restrictions to cope on their own. But this makes them eat more. I think it is quite difficult for them to overcome this on their own, so I recommend regular psychotherapy. " (D10K)

Table 8. Opinions Regarding Issues Emotional Eaters Struggle with Most Frequently.

Theme	Code	f
Personal Factors	Impulsivity	9
	Emotional Fluctuations	8
	Decrease in Motivation	5
	Telling Lies	3
	Stubbornness	3
Environmental Factors	Pressure of Rapid Feeding	7
	Social Media Body Image	9
	Work Stress	5
	Domestic Conflicts	9

When Table 8 is examined, rashness was expressed as the most difficult individual factor when working with emotionally eating clients. Some of the opinions of the participants regarding the individual factors they had difficulty with are as follows:

"They have very hasty behaviors about losing weight. When they cannot lose weight, they get demoralized very quickly. Therefore, it is quite tiring to try to motivate them all the time. " (FDI6K)

"In general, they secretly eat foods that should not be eaten, especially carbohydrates. When they are found out, especially women insist that they don't eat. This creates distrust and this destroys the relationship. " (D11K)

Some of the participants' views on the environmental factors that they had difficulty with are as follows:

"When they come, they come with a body size they want to be. I think social media is effective in these measurements. This situation is quite challenging because most of them are not capable of having that size. " (D1K)

"I find it difficult when it comes to work stress and family conflicts because I don't have a magic wand to solve them. In this process, I usually give them motivational speeches to help them succeed." (D2E)

Table 9. Opinions Regarding the Effect of Covid-19 Pandemic on Emotional Eating Behavior.

Theme	Sub-Theme	Code	f
Increase in Emotional Eating	Internal Factors	Stress-induced overeating	8
		Increased eating triggered by mentality of scarcity	6
		Failure to cope with the feeling of emptiness and filling it with food	7
	External Factors	Overeating to fortify the immune system	7
		Social isolation	6

Based on Table 9, it is stated that two factors are effective in the increase in emotional eating during the pandemic period. Some of the opinions on internal and external factors are as follows:

"They experienced extreme stress due to social isolation during the pandemic. So they gave themselves to food. " (PD3E)

"I saw that they usually overeat during this period to strengthen their immunity. " (D4K)

"Since these people are usually impulsive people with emotional fluctuations, they overeat because they couldn't find things to occupy themselves during this period." (P2E)

Table 10. Opinions Regarding the Effect of Culture on Emotional Eating.

Theme	Code	f
Effect of False Eating Beliefs	Fear of being chased by dogs	2
	Angels holding the plates and failure to finish quickly causing them to get tired	4
	Necessity to eat to avoid getting sick	3
	Mother taking them to hospital if they eat inadequately	1
	Overeating induced by fear of getting shots	3
	Overeating out of fear of vitamin deficiency	1
Internal Effect	Thoughts of waste	7
	Learning to not trust hunger-fullness signals	4
	Discomfort when the plate is not finished	4
External Effect	Catering in weddings, funerals, festivities	6
	Worry that the cook will be offended if the plate is not finished	7
	Maintaining family eating habits	2
	Social pressure (body image on women)	3

When Table 10 is examined, there are three different themes regarding the effect of culture on emotional eating. Some of the participants' views on the effect of culture on false eating beliefs are as follows:

"When I take the stories of my clients, I see that they have some thoughts that they have brought from the past. For example, they need to eat all the time in order not to get sick, or they eat because they are afraid of being deprived of vitamins. I think that these wrong thoughts have a cultural impact on emotional eating." (D9K)

"...When I look at the feeding stories of my clients, I see that there are some false beliefs from childhood. For example, one of my clients was often told by her mother that 'Angels hold her plate and if she does not finish it as soon as possible, the angels might get tired'. I think my

client may be eating too fast even because of this. " (D2K)

Some of the participants' views on the intrinsic influence of culture are as follows:

"I often talk to my clients and in conversations about nutrition, eating everything with the idea of waste and not leaving food on the plate come to the fore. ” (D1E)

"I talk to my clients about their family's eating habits. They especially remember their mothers constantly trying to feed them and making them eat with various games. I think that these people are disconnected from hunger and satiety at an early age. " (D5K)

Some of the participants' views on the external impact of culture are as follows:

"We are a society that loves treats, treats are the main themes of our cultural ethics from our wedding to our funeral. Growing up this way can be a reason for emotional eating. " (P4E)

"When I talk to my clients about their family stories, I hear sentences that start like this: In our house, everyone eats fast. Everyone loves dessert in our house. These sentences tell me that families have their own eating habits and children have their share of them. " (D8K)

Table 11. Knowledge of Dietitians, Psychologists, and Psychological Counselors Regarding Mindful Eating

Theme	Code	f
Interoceptive Mindfulness	Being connected with the body	8
	Noticing hunger-satiety signals	9
	Eating with awareness of 5 sensory organs	5
	Slowing down while eating	5
Cognitive Mindfulness	Distinguishing physical and emotional eating	4
	Stimulant-free eating	5
	Eating with awareness of feelings	6

When Table 11 is examined, it is seen that interoceptive mindfulness statements are in the majority. Some of the participants' interoceptive mindfulness views on the concept of mindful eating are as follows:

“Mindful eating skill enables people to connect with their bodies and recognize hunger and satiety sensations more easily.” (PD1E)

"Mindful eating is a skill that addresses each of the 5 sensory organs separately. ” (PD4K)

Some of the participants' cognitive mindfulness views on the concept of mindful eating are as follows:

"In mindful eating, people eat by listening to hunger and satiety signals. This makes it easier for them to perceive whether they are physically hungry or emotionally hungry. " (D7K)

“Mindful eating is like a concept that separates emotions from food and can break the influence of emotions on food.”(PD3K)

Table 12. Opinions Regarding Potential Outcomes After Developing Mindful Eating in Individuals Showing Emotional Eating Behaviors.

Theme	Code	f
Cognitive Mindfulness	Noticing the auto pilot	9
	Decrease in impulsivity	5
Affective Mindfulness	Controlling eating as a result of reduced emotional fluctuations	6
	Reduction of feeding emotions with foods	4

Bodily Mindfulness	Following signals of hunger-satiety	4
	Increasing the connection with body	7
	Noticing the satiety as a result of slowing down	6
Partial Mindfulness	Can reduce emotional eating, but the behavior will not go away until the underlying cause is resolved.	8

Considering Table 12, the results of emotional and bodily awareness are higher among the results of developing mindful eating. Some of the participants' views on emotional and bodily awareness are as follows:

"Since they will gain an awareness of their emotions, there will be a decrease in emotion-based eating behavior." (P4K)

"With mindful eating, they can stop suppressing their emotions with food." (P1E)

"With mindfulness skills, they will connect with their bodies more easily and they can recognize satiety earlier." (D3K)

"It will become easier to recognize when they are really hungry and when they are really full." (D9K)

Table 13. Opinions Regarding the Need for the Mindfulness-Based Program to Intervene Emotional Eating.

Theme	**Code**	**f**
Lack of Knowledge	Dietitians not knowing how to intervene emotional eating	4
	Dietitians teaching what to eat but failing to teach how to eat	2
Psychological	An effective methods for impulsivity intervention	5
	Effect of mindfulness on emotional fluctuations	5
Biological	Preventive for diseases	1
	Effective in dealing with obesity	1
	Mindful eating and feeling the fullness	3
Demand	Client demand for a support program during dieting	3
Economic	A functional program for those who cannot access therapy	7

When Table 13 is examined, it is thought that there is a need for a mindfulness-based emotional eating reduction program due to a lack of knowledge and psychological and biological needs. Some of the participants' views on the lack of knowledge and psychological and biological needs are as follows:

"I have a lot of clients who are emotional eaters, but I think their main problems are psychological and I don't have the knowledge to intervene." (D11K)

"I know that there is a lot of evidence on the control and regulation of emotions by mindfulness, so a program like this could solve this situation in a sustained way."(PD2K)

"Thanks to this program, I think they will be more aware of body signals because most of my clients cannot perceive that they are full. Developing attention to the body will provide a faster acquaintance with the feeling of satiety. " (D12K)

Table 14. Opinions Regarding the Advantages and Disadvantages of Mindfulness-Based Emotional Eating Reduction Program.

Theme	Code	f
Advantage	Breaking the diet cycle chain	4
	Reducing emotion and food pairing	6
	Ensuring a healthier diet	5
	Managing emotional eating behavior	9
	Sustainable solution to the weight problem	4
	Developing awareness of nutrition	5
Disadvantage	Non-existent	22
	Excessive awareness and directing to more eating	3

Regarding Table 14, there are more opinions about the advantages of the program. Some of the participants' views on the advantages of the program are as follows:

"When I look at the stories of my emotional eater clients, I see a history of at least 3 dietitians. These people are usually always in a diet cycle. Thanks to this program, I consider it as an advantage that they can make peace with their feelings and get out of this cycle." (D4K)

"I think that these clients, whose awareness of themselves and their environment is quite low, will realize the connection between emotions and meals more easily with the development of their emotional awareness. " (D3E)

"Thanks to this program, I think they will realize the emotion-food patterns in their lives. This may be a step for them to face their problems. " (P4E)

Some of the participants' views on the disadvantages of the program are as follows:

"Some of my clients may not be able to cope with the negative emotions they will experience in the mindfulness-based program and may eat more." (D6K)

"Since they will be in touch not only with their bodies but also with their emotions in this program, this may trigger underlying traumas in some people and cause them to eat more." (PD5K)

Table 15. Recommendations for the Activity Content of Mindfulness-Based Emotional Eating Reduction Program.

Theme	Code	f
Bodily Awareness	Experiencing physical hunger and satiety	5
	Sleep awareness	3
	Keeping a journal of feelings	12
Emotional Awareness	Feeling and food combination awareness practices	9
	Self-compassion practices	2
	Investigating food-related triggers	6
Social Awareness	WhatsApp support groups	4
	Psychologist and dietitian cooperation practices	9
	Meditation	5
Cognitive Awareness	Yoga	2
	Breathing awareness exercise	6

When Table 15 is examined, it is seen that most activity suggestions are mostly in the emotional awareness dimension. Some of the participants' suggestions for emotional and physical awareness activities are as follows:

"Within this program, activities can be done where they can feel physically hungry. For example, you can start a session with at least 4-5 hours of hunger once a week. " (D10K)

"It may be useful for them to keep a diary about

their feelings to recognize their feelings and patterns." (PD1K)

"An emotion diary can be kept to reveal which foods they associate their emotions with." (PD6K)

Some of the participants' suggestions for social and cognitive awareness activities are as follows:

"Within these groups, support can be provided to each other through WhatsApp groups. For example, at certain times of the day, everyone can write their awareness of that day's meal or snack in the group. " (P2K)

"Regular yoga exercises can be done for clients to feel their bodily sensations better." (P3K)

Table 16. Suggestions for Homework in Mindfulness-Based Emotional Eating Reduction Program.

Theme	Code	f
Benefit	Breaking the diet cycle chain	3
	Reducing the emotion and food pairing	5
	Ensuring healthy nutrition	2
	Decreasing motivational loss	3
	Developing awareness as a muscle	4
	Increasing the feeling of responsibility	1
	Ensuring rapid development of awareness	5
	Increasing the effectiveness of the program	4
Harm	No harm	6
	Overanxious people having difficulties taking responsibility	2
	Perfectionist clients leaving the group when they fail to complete the homework ideally	3
	Failure to complete the process over difficulties with tolerating negative feelings due to awareness	3

Based on the information in Table 16, there are more opinions about the benefits of homework. Some participants' views on the benefits of homework are as follows:

"Awareness is a muscle. To develop this cognitive muscle, I think it would be useful to have homework assignments that they can repeat outside the sessions." (PD5K)

"I think they can get out of this cycle more easily through practices where they can recognize the patterns of matching emotions and food. That's why I think homework is needed. " (P2E)

"I think it is important for them to have experiences on their own so that they can adapt the skills in the program to their daily lives. In order for this skill to be put into practice, the awareness muscle needs to be developed frequently, and homework is needed for this. " (D5K)

Some participants' views on the harms of homework are as follows:

"People will have many good or bad realizations in this process. Some may find it difficult to cope with negative realizations and this may make it difficult for them to complete the process. " (PD1K)

"I don't think there will be any harm. Maybe people with specific anxiety disorders may find it difficult at first to take this much responsibility for themselves. " (PD2E)

Table 17. Opinions Regarding the Duration of Mindfulness-Based Emotional Eating Reduction Program.

Theme	Code	f
0-3 months	4-6 weeks	5
	6-8 weeks	9
	8 weeks	7
	10 weeks	1
3-6 months	12-24 weeks	1
6-12 months	24 weeks	1
	52 weeks	1

Upon examining Table 17, it is seen that the opinions on the duration of the program are more common between 0-3 months. Some participants' views on the duration of the 0-3 month program are as follows: *"It takes at least 6-8 weeks for feeding patterns to be recognized."* (D7K)*"An 8-week follow-up will be sufficient for awareness and habits to be established.* " (PD3K)

DISCUSSION AND CONCLUSION

The current study can be seen as one of the few studies investigating the phenomenology of emotional eating. Two previous studies have investigated the emotions leading to emotional eating and the relationship between emotional eating and attachment using the phenomenological method. Using open-ended unstructured interview forms, Kemp et al. (2013) investigated the situations and factors leading to emotional eating. They found that individuals eat to obtain short-term satisfaction from their negative emotions and to minimize their negative emotions. Similarly, Hernandez-Hons and Woolley (2012) conducted a study using semi-structured interviews to investigate the phenomenology of attachment relationships and contextual factors affecting emotional eating. They found that individuals use food to cope with insecure attachment patterns, empowerment, and acceptance. In the literature, there has not yet been a study on these concepts within the scope of the views of dietitians, psychologists, and psychological counselors. This study aims to address and further deepen the phenomenology of emotional eating and mindful eating within the framework of stakeholders.

Participants' level of knowledge about emotional eating and mindful eating for their clients was evaluated in four categories (social media awareness, awareness due to socioeconomic level, partial awareness-coping inadequacy, and low awareness). The results showed that social media had an effect on the level of knowledge about the concepts. A study conducted in China during the Covid-19 pandemic reported that exposure to social media led to emotional eating through anxiety and that the concept of emotional eating was among the most frequently searched concepts in the 'Google' search engine (Gao et al., 2022). Another outcome is that the level of awareness of concepts varies depending on socio-economic level. The qualitative study conducted by Fonseca et al. (2019) to reveal the relationship between emotional eating and socio-economic level was found to be consistent with the results of the current study. A study examining whether mindfulness differs depending on socioeconomic level revealed that there is an increase in people's mindfulness levels due to the increase in socioeconomic level (Andrews, 2009). These two studies reveal that the level of awareness of the concepts of emotional eating and mindfulness increases depending on the increase in socioeconomic level. This may be attributed to the increase in the diversity of sources/stimuli depending on the socioeconomic level. A study investigating whether mindfulness is a luxury or not stated that people with poor socioeconomic status have difficulty allocating resources for personal development and, therefore, have difficulty allocating resources for the training they will receive to develop mindfulness (Andrews, 2009). The majority of the participants said that some of their clients

have partial awareness, but their coping skills are inadequate. This may be associated with emotional eating, a relatively new concept developed with the accumulation of knowledge about the effect of emotions on human eating behaviors (Macht, 2008). On the other hand, recognizing a problem does not mean solving it, but it may make the situation more complicated if adequate coping skills are not in place.

The question about the determinants of emotional eaters was evaluated in two categories. The first one is the individual determinants of these people, where the outputs presented are negative emotions or evaluations. In the literature, emotional eating was found to be positively associated with concepts such as inadequacy and low self-perception (Fairburn and Bohn, 2005), low-stress tolerance (Spoor et al., 2007), negative body image and difficulty in emotion regulation (Shriver et al., 2020). The relationship with these concepts is parallel to the definition of emotional eating. Emotional eating is an unhealthy coping mechanism in which food is preferred in response to negative emotional states. The fact that these individuals have a narrow window of tolerance for the emotions they experience may lead them to turn to food to cope with their emotions. Another determinant is situational determinants. It was stated that these individuals were fond of carbohydrate foods and were in a diet cycle. This can be explained according to Gray's (1987) reinforcement sensitivity theory. In the context of emotional eating, reward-sensitive individuals have learned that delicious foods can have a mood-enhancing effect they try to achieve when in a negative mood. Underlying neurobiological adaptations suggest that carbohydrates are similar to addictive substances (Davis et al., 2007). This unbalanced diet may be putting people in a perpetual dieting cycle.

When we look at the coping mechanisms recommended for emotional eating clients, it is seen that there are suggestions concerning getting expert support and self-help. Referral to a psychologist is thought to be one of the mechanisms underlying emotional eating, which is thought to be caused by the inability to stop the desire to eat, that is, impulsive behavior. Indeed, previous research has considered an individual's impulsivity as a psychological determinant of emotional eating. While impulsivity has traditionally been understood as a pleasure-oriented behavior, recent research suggests a relationship with different cognitive control subsystems and describes it as “a product of impaired cognitive control” (Dalley et al., 2011; Huang et al., 2017). Other coping suggestions are self-help suggestions. It can be said that these suggestions generally provide a break between emotion and food by drawing attention to something other than food.

When we look at the advantages and disadvantages of emotional eating, the most frequently repeated disadvantages are weight gain and the statements that there is a cyclicality in weight gain. A study conducted with 1562 participants found that emotional eating caused weight gain and cyclicality in weight gain (Koenders and van Strein, 2011). This was attributed to people's inability to touch the underlying problem and their low awareness of their emotions. Another outcome reported as an advantage is that food has a rapid sedative effect. However, the extent to which this can be characterized as an advantage is a matter of debate. It was observed that children whose mothers used food to soothe them at the age of 18 months tended to engage in emotional overeating when they were observed again at the age of 30 months (Harris et al., 2020). This can be explained according to Gray's (1987) reinforcement sensitivity theory. These children may have learned about the soothing properties of food when they were introduced to food.

In the outputs related to the emotions and situations that emotional eating clients were most triggered by, it was observed that the most frequently recurring emotion was stress. Many studies reveal the link between emotional eating and stress (Bennett et al., 2013; Torres and Nowson, 2007; Oliver et al., 2000). In addition, some negative emotions have also been reported to trigger emotional eating, which may be related to people's narrow tolerance window for negative emotions and inadequate coping mechanisms. On the other hand, when we look at the triggering situations,

more negative situations stand out. Some studies show that emotional eaters have inadequate coping mechanisms with negative situations (Match and Simsons, 2011; Yönder-Ertem and Karakaş, 2021).

When asked what emotional eaters need to cope with this situation, it was stated that people should have some intrinsic and extrinsic motivation. When we look at intrinsic motivation, it can be said that they are gathered in the self-regulation skills class. Self-regulation motivations ensure that people's sense of choice is based on solid foundations, that they find meaning, and that they feel volitional (i.e., make a conscious decision or choice) (Teixeira et al., 2011). Moreover, it is known that people with a sense of self-regulation have more developed emotion-regulation capacities (Evers et al., 2011). Therefore, it is thought that if these individuals have self-regulation skills, their emotion-regulation capacities will also improve, and they will be able to cope with this situation more easily. Resources expressed as extrinsic motivation are regular psychotherapy and social support. Indeed, seeking social support, which is a common coping strategy, is thought to be a basic buffer (coping resource) to limit the effects of stressful experiences, including mental and physical health consequences (Matheson and Anisman, 2003).

Statements about how emotional eating was affected during the Covid-19 pandemic increased. Quantitative studies in the literature confirm this finding (Al-Musharaf, 2020; Madalı et al., 2021). Examining the studies on the increase in emotional eating specific to the Covid-19 pandemic, stress (Shen et al., 2020), fear of food deprivation (Al-Musharaf, 2020), feelings of emptiness (Durão, Vaz et al., 2021), overeating to strengthen immunity (Di Renzo et al., 2020), and stress-induced eating due to social isolation (Dos Santos Quaresma et al., 2021) are among the triggering factors. This may explain why people turn to food so much because they are restricted in using the coping resources available in this process.

When asked about the effect of culture on emotional eating, the view that culture affects eating is dominant. According to Tezcan (200), culture is the main determinant of what and how we eat and forms the basis of eating habits learned at an early age. The shaping feature of culture on food may also cause us to have some false beliefs about eating (Kerkez et al., 2013). Some negative statements about eating, which are formed at a young age when children are taught eating habits, can appear as negative motivations for eating in adult life (Harris et al., 2020). (Harris et al., 2020). It can be said that this situation causes children to learn not to trust hunger and satiety signals at an early age and causes them to become emotional eaters. Serving food on important days (funerals, holidays, weddings, etc.) is a cultural heritage (Çetin, 2020). These ceremonies are emotionally charged social events. The food served here may reinforce the connection between emotions and food. Again, in Turkish culture, even asking the guest, “Are you hungry?” is considered shameful (Çetin, 2020). It can be thought that this situation causes people to feel obliged to eat even if they are not hungry and cannot say no. In Turkish culture, it is frequently emphasized to avoid overeating and waste (Çetin 2020). The fact that this teaching is frequently emphasized from an early age may cause people to eat even though they have reached satiety in order not to leave anything on their plates.

When examining the responses regarding the potential outcomes of enhancing mindful eating skills in individuals exhibiting emotional eating behavior, it is evident that there is a prevailing view suggesting that as individuals move away from automatic eating patterns, their tendency to seek emotional satisfaction through food will diminish. Looking at the literature, it has been reported that as a result of short-term mindfulness interventions to reduce emotional eating, people become aware of their eating behaviors perceived as “automatic”, their body awareness increases, they are less prone to reward impulsive behaviors, they are more compatible with internal hunger/satiety signals and experience less stress (Lattimore, 2020; Beccia et al., 2020). It can be said that the participants' views on the effects of mindful eating skills on emotional eating behavior are consistent with the literature.

The opinions on whether there is a need for a

program to reduce emotional eating are that there is such a need. These needs were classified into four different categories (lack of information, biological, demand, and economic). Looking at Europe and America, it is seen that mindfulness-based intervention practices for eating disorders have become quite widespread in the last 20 years (Godfrey et al., 2015; Lattimore, 2020; Dunne, 2018). Especially in the United States, mindfulness practice interventions in eating disorder treatments are included in the category of state-sponsored practices (American Code Lotus Hospital, 2020). The World Health Organization has launched a call for mindfulness-based practices in obesity intervention (WHO, 2022). However, mindfulness-based practices are not widely used in Turkey. Considering the literature and the world press, it is thought that there is a need to put such practices into practice in Turkey.

The statements regarding the advantages and disadvantages of the program were mostly in the direction of advantages. In the literature, it has been reported that mindfulness-based practices to reduce emotional eating help people to choose healthier foods (Lattimore, 2020), reduce dietary restrictions (Smith et al., 2020), and improve motivation, cognitive flexibility, and emotion regulation skills (Beccia et al., 2020). On the other hand, in mindfulness-based weight control interventions, weight gain was observed in people with negative automatic thoughts and high intolerance to uncertainty (Mantzios et al., 2015). This situation can be considered a possible situation when looking at the nature of mindfulness. Mindfulness is defined as looking at whatever happens in the moment, whether positive or negative, without judgment. Negative experiences realized at the moment can challenge coping skills and may also cause people to be in an undesirable mood.

In response to the question of what kind of activities should be included in the program, activity suggestions were given for different areas of mindfulness (physical, emotional, social, and cognitive). When the literature was examined, practices such as keeping an emotional diary to regulate and recognize emotions (Hülsheger et al., 2013), meditation and yoga practices (Kearney et al., 2012), self-compassion practices (Gouveia et al., 2019), physical hunger, and satiety experiential practices (Monreo, 2015), online support group studies (Li et al., 2022) were found in mindfulness practices. Mindfulness-based practices consist of experience-based teachings. It is seen that the majority of the proposed studies and activities have equivalents in the literature.

The majority of the answers to the question about having homework in the mindfulness-based emotional eating program were that it would be useful to have homework. Homework is known to be at the core of mindfulness-based programs (MBSR, MBCT) (Williams et al., 2022). The presence of homework in mindfulness-based programs is explained as follows: The more we practice while playing a musical instrument, the better we learn, and since mindfulness is considered a muscle, it is emphasized that constant practice is needed (Monreo, 2015). In a meta-analysis study investigating the effectiveness of homework in mindfulness-based practices in the literature, it was concluded that home practices were supportive of 80% of the desired behaviors in clinical criteria (Lloyd et al., 2018).

Evaluations regarding the duration of the program vary. When the literature is examined, it is found that mindfulness-based practices for different eating disorders include '6-week interventions (Timmerman and Brown, 2012; Kristeller and Hallet, 1999; Dalen et al., 2010), 8-week interventions (Alberts et al., 2012; Kearney et al.; Miller et al., 2012; Rosenzweig et al., 2007; Smith et al., 2008), 9-week interventions (Kristeller et al., 2014), 10-week interventions (Alberts et al., 2010; Bear et al., 2005; Leahey et al., 2008). In fMRI imaging studies on mindfulness practices, it has been reported that at least 6 weeks of meditation practices are needed to observe an improvement in the anterior cingulate/medial prefrontal cortex (Engström et al., 2022). Therefore, it can be said that mindfulness-based intervention programs need at least 6 weeks of practice.

The current study uses the interview method to focus on the phenomenological research of

emotional eating and mindfulness of eating. Since the research focuses on subjective experience, it is thought to provide ideas for future empirical research. The findings obtained provide a deeper perspective on the issues of mindful eating and emotional eating based on the views of the participants. It also provides new findings that future research can use in their qualitative meta-synthesis and quantitative methods.

Authorship Contributions: In this study, the first author undertook the responsibilities of literature review, conducting the research, performing the meta-analysis, reporting the findings, and writing the article, while the second author undertook the responsibilities of generating the hypothesis, checking spelling and grammar.

Funding: The authors did not benefit from any financial support in this study.

Conflict of interest: The authors have no conflicts of interest to declare.

Ethics approval and consent to participate: This study has the approval of the ethics committee of Düzce University Scientific Research and Publication Ethics Committee with the decision number 2022/255. The study was conducted in line with the principles of the "Helsinki Declaration."

Availability of Data and Materials: The datasets from the current study can be obtained on request from the corresponding author.

This research is a product of a stakeholder opinion study conducted during the doctoral thesis titled ‘Development and Evaluation of a Conscious Awareness-Based Emotional Eating Reduction Program’ registered with YÖK TEZ, number 874916.

REFERENCES

Aboueid, S., Pouliot, C., Nur, T., Bourgeault, I. and Giroux, I. (2019), Dietitians' perspectives on patient barriers and enablers to weight management: An application of the social-ecological model. *Nutr Diet, 76*, 353-362. https://doi.org/10.1111/1747-0080.12510

Adam, T. C., and Epel, E. S. (2007). Stress, eating and the reward system. *Physciology Behavior*, *91*(4), 449-458. https://doi.org/10.1016/j.physbeh.2007.04.011

Alberts, H. J., Mulkens, S., Smeets, M. and Thewissen, R. (2010). Coping with food cravings. Investigating the potential of a mindfulness-based intervention. *Appetite*, *55*(1), 160-163. https://doi.org/10.1016/j.appet.2010.05.044

Alberts, H. J., Thewissen, R. and Raes, L. (2012). Dealing with problematic eating behaviour. The effects of a mindfulness-based intervention on eating behaviour, food cravings, dichotomous thinking and body image concern. *Appetite*, *58*(3), 847-851. https://doi.org/10.1016/j.appet.2012.01.009

Al-Musharaf, S. (2020). Prevalence and predictors of emotional eating among healty young Saudi women during the COVID-19 pandemic. *Nutrients, 12*, 23-29. https://doi.org/10.3390/nu12102923

American Code Lotus. (2023, 20 Mart). Mindfulness. Access address: https://www.amerikanhastanesi.org/arama-sonuc?search=mindfulness

Andrews, S. M. (2009). *Is mindfulness a luxury? Examining the role of socioeconomic status in the relationship between dispositional mindfulness and psychological distress*. (Master's Thesis, Southern Illinois University at Carbondale). Access address: https://opensiuc.lib.siu.edu/theses/60/

Arch, J. J. and Craske, M. G. (2006). Mechanisms of mindfulness: Emotion regulation following a focused breathing induction. *Behaviour Research and Therapy*, *44*(12), 1849-1858. https://doi.org/10.1016/j.brat.2005.12.007

Arnow, B., Kenardy, J. and Agras, W. S. (1995). The Emotional Eating Scale: The development of a measure to assess coping with negative affect by eating. *International Journal of Eating Disorders*, *18*(1), 79-90. https://doi.org/10.1002/1098-108x(199507)18:1<79::aid-eat2260180109>3.0.co;2-v

Aydeniz-Güneşer, B. and Kahraman, A. M. (2023). Holistic Nutrition Approach: Spiritual, Mental and Physical Nutrition. *Bursa Uludag University Faculty of Agriculture Journal, 37*(2), 551-560. https://doi.org/10.20479/bursauludagziraat.1326580

Baer, R. A., Fischer, S. and Huss, D. B. (2005). Mindfulness and acceptance in the treatment of disordered eating. *Journal Of Rational-Emotive and Cognitive-Behavior Therapy*, *23*, 281-300. https://doi.org/10.1007/s10942-005-0015-9

Beccia, A. L., Ruf, A., Druker, S., Ludwig, V. U. and Brewer, J. A. (2020). Women's Experiences with a Mindful Eating Program for Binge and Emotional Eating: A Qualitative Investigation into the Process of Change. *The Journal of Alternative and Complementary Medicine*, *26*(10), 937-944. https://doi.org/10.1089/acm.2019.0318

Bennett, J., Greene, G. and Schwartz-Barcott, D. (2013). Perceptions of emotional eating behavior. A qualitative study of college students. *Appetite*, *60*, 187-192. https://doi.org/10.1016/j.appet.2012.09.023

Bieling, P. J., Hawley, L. L., Bloch, R. T., Corcoran, K. M., Levitan, R. D., Young, L. T., ... and Segal, Z. V. (2012). Treatment-specific changes in decentering following mindfulness-based cognitive therapy versus antidepressant medication or placebo for prevention of depressive relapse. *Journal of Consulting and Clinical Psychology*, *80*(3), 365-375. https://doi.org/10.1037/a0027483

Biernacki, P. and Waldorf, D. (1981). Snowball Sampling Problems and Techniques of Chain Referral Sampling. *Sociological Methods and Research, 10*, 141-163. https://doi.org/10.1177/004912418101000205

Camilleri, G. M., Méjean, C., Bellisle, F., Hercberg, S. and Péneau, S. (2015). Association between mindfulness and weight status in a general population from the NutriNet-Santé study. *PloS one*, *10*(6), e0127447. https://doi.org/10.1371/journal.pone.0127447

Christensen, L. and Brooks, A. (2006). Changing food preference as a function of mood. *The Journal of Psychology*, *140*(4), 293-306. https://doi.org/10.3200/JRLP.140.4.293-306

Christensen, L. and Pettijohn, L. (2001). Mood and carbohydrate cravings. *Appetite*, *36*(2), 137-145. https://doi.org/10.1006/appe.2001.0390

Creswell, J. D. (2017). Mindfulness interventions. *Annual Review of Psychology*, *68*, 491-516. https://doi.org/10.1146/annurev-psych-042716-051139

Çetin, K. (2020). *Mutfak ve Yemek Kültürü*. İstanbul: Ravza Yayıncılık

Dalen, J., Smith, B. W., Shelley, B. M., Sloan, A. L., Leahigh, L. and Begay, D. (2010). Pilot study: Mindful Eating and Living (MEAL): weight, eating behavior, and psychological outcomes associated with a mindfulness-based intervention for people with obesity. *Complementary Therapies in Medicine*, *18*(6), 260-264. https://doi.org/10.1016/j.ctim.2010.09.008

Dalley, J. W., Everitt, B. J. and Robbins, T. W. (2011). Impulsivity, compulsivity, and top-down cognitive control. *Neuron*, *69*(4), 680-694. https://doi.org/10.1016/j.neuron.2011.01.020

Dalrymple, K. L., Walsh, E., Rosenstein, L., Chelminski, I. and Zimmerman, M. (2017). Modification of the medical exclusion criterion in DSM-5 social anxiety disorder: Comorbid obesity as an example. *Journal of Affective Disorders*, *210*, 230-236. https://doi.org/10.1016/j.jad.2016.12.055

Danner, U. N., Evers, C., Stok, F. M., van Elburg, A. A. and de Ridder, D. T. (2012). A double burden: Emotional eating and lack of cognitive reappraisal in eating disordered women. *European Eating Disorders Review*, *20*(6), 490-495. https://doi.org/10.1002/erv.2184

Davis, C., Patte, K., Levitan, R., Reid, C., Tweed, S. and Curtis, C. (2007). From motivation to behaviour: a model of reward sensitivity, overeating, and food preferences in the risk profile for obesity. *Appetite*, *48*(1), 12-19. https://doi.org/10.1016/j.appet.2006.05.016

Davis, C., Strachan, S. and Berkson, M. (2004). Sensitivity to reward: implications for overeating and overweight. *Appetite*, *42*(2), 131-138. https://doi.org/10.1016/j.appet.2003.07.004

Di Renzo, L., Gualtieri, P., Cinelli, G., Bigioni, G., Soldati, L., Attinà, A., ... and De Lorenzo, A. (2020). Psychological aspects and eating habits during COVID-19 home confinement: results of EHLC-COVID-19 Italian online survey. *Nutrients*, *12*(7), 2152. https://doi.org/10.3390/nu12072152

Dos Santos Quaresma, M. V., Marques, C. G., Magalhães, A. C. O. and Dos Santos, R. V. T. (2021). Emotional eating, binge eating, physical inactivity, and vespertine chronotype are negative predictors of dietary practices during COVID-19 social isolation: A cross-sectional study. *Nutrition*, *90*, 111223. https://doi.org/10.1016/j.nut.2021.111223

Dunne, J. (2018). Mindfulness in anorexia nervosa: an integrated review of the literature. *Journal of the American Psychiatric Nurses Association*, *24*(2), 109-117. https://doi.org/10.1177/1078390317711250

Durão, C., Vaz, C., de Oliveira, V. N. and Calhau, C. (2021). Confinement during the COVID-19 pandemic after metabolic and bariatric surgery—associations between emotional distress, energy-dense foods, and body mass index. *Obesity Surgery*, *31*(10), 4452-4460. https://doi.org/10.1007/s11695-021-05608-2

Eddy, K. T., Tanofsky-Kraff, M., Thompson-Brenner, H., Herzog, D. B., Brown, T. A. and Ludwig, D. S. (2007). Eating disorder pathology among overweight treatment-seeking youth: Clinical correlates and cross-sectional risk modeling. *Behaviour Research and Therapy*, *45*(10), 2360-2371. https://doi.org/10.1016/j.brat.2007.03.017

Engström, M., Willander, J. and Simon, R. (2022). A review of the methodology, taxonomy, and definitions in recent fMRI research on meditation. *Mindfulness*, *13*(3), 541-555. https://doi.org/10.1007/s12671-021-01782-7

Evers, C., Marijn Stok, F. and de Ridder, D. T. (2010). Feeding your feelings: Emotion regulation strategies and emotional eating. *Personality and Social Psychology Bulletin*, *36*(6), 792-804. https://doi.org/10.1177/0146167210371383

Fairburn, C. G. and Bohn, K. (2005). Eating disorder NOS (EDNOS): an example of the troublesome "not otherwise specified"(NOS) category in DSM-IV. *Behaviour Research and Therapy*, *43*(6), 691-701. https://doi.org/10.1016/j.brat.2004.06.011

Fogarty, F. A., Lu, L. M., Sollers, J. J., Krivoschekov, S. G., Booth, R. J. and Consedine, N. S. (2015). Why it pays to be mindful: Trait mindfulness predicts

physiological recovery from emotional stress and greater differentiation among negative emotions. *Mindfulness*, *6*, 175-185. https://doi.org/10.1007/s12671-013-0242-6

Fonseca, V. V., Ares, G. and Deliza, R. (2019). Do food-related emotional associations differ with socio-economic status? An exploratory qualitative study with Brazilian consumers. *Food Research International*, *116*, 687-696. https://doi.org/10.1016/j.foodres.2018.08.097

Franken, I. H. and Muris, P. (2005). Individual differences in reward sensitivity are related to food craving and relative body weight in healthy women. *Appetite*, *45*(2), 198-201. https://doi.org/10.1016/j.appet.2005.04.004

Fujita, F., Diener, E. and Sandvik, E. (1991). Gender differences in negative affect and well-being: the case for emotional intensity. *Journal of Personality and Social Psychology*, *61*(3), 427. https://doi.org/10.1037//0022-3514.61.3.427

Gao, Y., Ao, H., Hu, X., Wang, X., Huang, D., Huang, W., ... and Gao, X. (2022). Social media exposure during covid-19 lockdowns could lead to emotional overeating via anxiety: The moderating role of neuroticism. *Applied Psychology: Health and Well-Being*, *14*(1), 64-80. https://doi.org/10.1111/aphw.12291

Geliebter, A. and Aversa, A. (2003). Emotional eating in overweight, normal weight, and underweight individuals. *Eating Behaviors*, *3*(4), 341-347. https://doi.org/10.1016/s1471-0153(02)00100-9

Godfrey, K. M., Gallo, L. C. and Afari, N. (2015). Mindfulness-based interventions for binge eating: a systematic review and meta-analysis. *Journal of Behavioral Medicine*, *38*, 348-362. https://doi.org/10.1007/s10865-014-9610-5

Gouveia, M.J., Canavarro, M.C. and Moreira, H. (2019). Associations between Mindfulness, Self-Compassion, Difficulties in Emotion Regulation, and Emotional Eating among Adolescents with Overweight/Obesity. *Journal Children Family Studies, 28*, 273–285. https://doi.org/10.1007/s10826-018-1239-5

Gray, J. A. (1987). *The Psychology of Fear and Stress* (Vol. 5). CUP Archive. Access address: https://books.google.com.tr/books?id=nww5AAAAIAAJandlpg=PR6andots=rpDo4vZdwZandlrandpg=PA96#v=onepageandqandf=false

Harris, H. A., Anzman-Frasca, S., Marini, M. E., Paul, I. M., Birch, L. L. and Savage, J. S. (2020). Effect of a responsive parenting intervention on child emotional overeating is mediated by reduced maternal use of food to soothe: The INSIGHT RCT. *Pediatric Obesity*, *15*(10), e12645. https://doi.org/10.1111/ijpo.12645

Heatherton, T. F. and Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin*, *110*(1), 86. https://doi.org/10.1037/0033-2909.110.1.86

Hernandez-Hons, A. and Woolley, S. R. (2012). Women's experiences with emotional eating and related attachment and sociocultural processes. *Journal of Marital and Family Therapy*, *38*(4), 589-603. https://doi.org/10.1111/j.1752-0606.2011.00239.x

Huang, S., Zhu, Z., Zhang, W., Chen, Y. and Zhen, S. (2017). Trait impulsivity components correlate differently with proactive and reactive control. *PLoS One*, *12*(4), e0176102. https://doi.org/10.1371/journal.pone.0176102

Hülsheger, U. R., Alberts, H. J., Feinholdt, A. and Lang, J. W. (2013). Benefits of mindfulness at work: the role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, *98*(2), 310. https://doi.org/10.1037/a0031313

Jasinska, A. J., Yasuda, M., Burant, C. F., Gregor, N., Khatri, S., Sweet, M. and Falk, E. B. (2012). Impulsivity and inhibitory control deficits are associated with unhealthy eating in young adults. *Appetite*, *59*(3), 738-747. https://doi.org/10.1016/j.appet.2012.08.001

Kearney, D. J., McDermott, K., Malte, C., Martinez, M. and Simpson, T. L. (2012). Association of participation in a mindfulness program with measures of PTSD, depression and quality of life in a veteran sample. *Journal of Clinical Psychology*, *68*(1), 101-116. https://doi.org/10.1002/jclp.20853

Kearney, D. J., Milton, M. L., Malte, C. A., McDermott, K. A., Martinez, M. and Simpson, T. L. (2012). Participation in mindfulness-based stress reduction is not associated with reductions in emotional eating or uncontrolled eating. *Nutrition Research*, *32*(6), 413-420. https://doi.org/10.1016/j.nutres.2012.05.008

Kemp, E. and Kopp, S. W. (2011). Emotion regulation consumption: When feeling better is

the aim. *Journal of Consumer Behaviour*, *10*(1), 1-7. https://doi.org/10.1002/cb.341

Kemp, E., Bui, M. Y. and Grier, S. (2013). When food is more than nutrition: Understanding emotional eating and overconsumption. *Journal of Consumer Behaviour*, *12*(3), 204-213. https://doi.org/10.1002/cb.1413

Kerkez, F. İ., Tutal, V. and Akçınar, F. (2013). Body Image Perception and Body Dissatisfaction in Preschool Children. *Journal of Sports Sciences, 24*(3), 234-244. Access address:https://dergipark.org.tr/tr/download/article-file/151214

Koenders, P. G. and van Strien, T. (2011). Emotional eating, rather than lifestyle behavior, drives weight gain in a prospective study in 1562 employees. *Journal of Occupational and Environmental Medicine*, 1287-1293. https://doi.org/10.1097/JOM.0b013e31823078a2

Konttinen, H., Männistö, S., Sarlio-Lähteenkorva, S., Silventoinen, K. and Haukkala, A. (2010). Emotional eating, depressive symptoms and self-reported food consumption. A population-based study. *Appetite*, *54*(3), 473-479. https://doi.org/10.1016/j.appet.2010.01.014

Köse, G. (2021). *Yemek Yerken Düşünmek Mümkün mü?*. Ankara: Akademisyen Yayınevi.

Kristeller, J. L. and Hallett, C. B. (1999). An exploratory study of a meditation-based intervention for binge eating disorder. *Journal of Health Psychology*, *4*(3), 357-363. https://doi.org/10.1177/135910539900400305

Kristeller, J., Wolever, R.Q. and Sheets, V. (2014). Mindfulness-Based Mindful eating Training (MB-EAT) for Binge Eating: A Randomized Clinical Trial. *Mindfulness, 5*(2), 282–297. https://doi.org/10.1007/s12671-012-0179-1

Lafay, L., Thomas, F., Mennen, L., Charles, M. A., Eschwege, E. and Borys, J. M. (2001). Gender differences in the relation between food cravings and mood in an adult community: Results from the Fleurbaix Laventie Ville Sante study. *International Journal of Eating Disorders*, *29*(2), 195-204. https://doi.org/10.1002/1098-108x(200103)29:2<195::aid-eat1009>3.0.co;2-n

Lattimore, P. (2020). Mindfulness-based emotional mindful eating training: Taking the emotional out of eating. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *25*, 649-657. https://doi.org/10.1007/s40519-019-00667-y

Leahey, T. M., Crowther, J. H. and Irwin, S. R. (2008). A cognitive-behavioral mindfulness group therapy intervention for the treatment of binge eating in bariatric surgery patients. *Cognitive and Behavioral Practice*, *15*(4), 364-375. https://doi.org/10.1016/j.cbpra.2008.01.004

Leisman, G. and Melillo, R. (2012). The development of the frontal lobes in infancy and childhood: Asymmetry and the nature of temperament and affect. *Frontal lobe: Anatomy, functions and injuries*. Access address: https://www.drrobertmelillo.com/research/2012-The-development-of-the-frontal-lobes-in-infancy-and-childhood-Asymmetry-and-the-nature-of-temperament-and-affect.pdf

Li, A. C., Wong, K. K., Chio, F. H., Mak, W. W. and Poon, L. W. (2022). Delivering mindfulness-based interventions for insomnia, pain, and dysfunctional eating through a text messaging app: Three randomized controlled trials investigating the effectiveness and mediating mechanisms. *Journal of Medical Internet Research*, *24*(5), e30073. https://doi.org/10.2196/30073

Limberg, L. (2008). *Phenomenography.* In L. Given (Ed.), The SAGE encyclopedia of qualitative research methods. (pp. 612-615). Thousand Oaks, CA: Sage.

Lloyd, A., White, R., Eames, C. and Crane, R. (2018). The utility of home-practice in mindfulness-based group interventions: a systematic review. *Mindfulness*, *9*, 673-692. https://doi.org/10.1007/s12671-017-0813-z

Lowe, M. R. and Butryn, M. L. (2007). Hedonic hunger: a new dimension of appetite?. *Physiology and Behavior*, *91*(4), 432-439. https://doi.org/10.1016/j.physbeh.2007.04.006

Lowe, M. R. and Fisher, E. B. (1983). Emotional reactivity, emotional eating, and obesity: A naturalistic study. *Journal of Behavioral Medicine*, *6*, 135-149. https://doi.org/10.1007/BF00845377

Macht, M. and Simons, G. (2011). Emotional eating. *Emotion Regulation and Well-Being*, 281-295. https://doi.org/10.1007/978-1-4419-6953-8_17

Macht, M. (2008). How emotions affect eating: A five-way model. *Appetite*, *50*(1), 1-11.

https://doi.org/10.1016/j.appet.2007.07.002

Madalı, B., Alkan, Ş. B., Örs, E. D., Ayrancı, M., Taşkın, H. and Kara, H. H. (2021). Emotional eating behaviors during the COVID-19 pandemic: a cross-sectional study. *Clinical nutrition ESPEN*, *46*, 264-270. https://doi.org/10.1016/j.clnesp.2021.09.745

Mantzios, M., Wilson, J. C., Linnell, M. and Morris, P. (2015). The role of negative cognition, intolerance of uncertainty, mindfulness, and self-compassion in weight regulation among male army recruits. *Mindfulness*, *6*(2), 545-552. https://doi.org/10.1007/s12671-014-0286-2

Matheson, K. and Anisman, H. (2003). Systems of coping associated with dysphoria, anxiety and depressive illness: a multivariate profile perspective. *Stress*, *6*(3), 223-234. https://doi.org/10.1080/10253890310001594487

Michels, N., Sioen, I., Braet, C., Eiben, G., Hebestreit, A., Huybrechts, I., ... and De Henauw, S. (2012). Stress, emotional eating behaviour and dietary patterns in children. *Appetite*, *59*(3), 762-769. https://doi.org/10.1016/j.appet.2012.08.010

Miller, C. K., Kristeller, J. L., Headings, A., Nagaraja, H. and Miser, W. F. (2012). Comparative effectiveness of a mindful eating intervention to a diabetes self-management intervention among adults with type 2 diabetes: A pilot study. *Journal of the Academy of Nutrition and Dietetics*, *112*(11), 1835-1842. https://doi.org/10.1016/j.jand.2012.07.036

Monroe, J. T. (2015). Mindful eating: principles and practice. *American Journal of Lifestyle Medicine*, *9*(3), 217-220. https://doi.org/10.1177/155982761556968

Moro, G.L., Bert, F., Catozzi, D., Scacchi, A. and Siliquini, R. (2022). Emotional eating and depression during the pandemic: QuarantEat, an Italian nationwide survey. *Nutrition, 11*(5), 103-104. https://doi.org/10.1016/j.nut.2022.111825

Moschis, G. P. (2007). Stress and consumer behavior. *Journal of the Academy of Marketing Science*, *35*, 430-444. https://doi.org/10.1007/s11747-007-0035-3

Nguyen-Rodriguez, S. T., Chou, C. P., Unger, J. B. and Spruijt-Metz, D. (2008). BMI as a moderator of perceived stress and emotional eating in adolescents. *Eating Behaviors*, *9*(2), 238-246. https://doi.org/10.1016/j.eatbeh.2007.09.001

Nolen-Hoeksema, S. (1987). Sex differences in unipolar depression: Evidence and theory. *Psychological Bulletin*, *101*(2), 259. https://doi.org/10.1037/0033-2909.101.2.259

Oliver, G., Wardle, J. and Gibson, E. L. (2000). Stress and food choice: a laboratory study. *Psychosomatic Medicine*, *62*(6), 853-865. https://doi.org/10.1097/00006842-200011000-00016

Ozier, A. D., Kendrick, O. W., Leeper, J. D., Knol, L. L., Perko, M. and Burnham, J. (2008). Overweight and obesity are associated with emotion-and stress-related eating as measured by the eating and appraisal due to emotions and stress questionnaire. *Journal of the American Dietetic Association*, *108*(1), 49-56. https://doi.org/10.1016/j.jada.2007.10.011

Parkinson, B. and Totterdell, P. (1999). Classifying affect-regulation strategies. *Cognition and Emotion*, *13*(3), 277-303. https://doi.org/10.1080/026999399379285

Pearson, M. R., Lawless, A. K., Brown, D. B. and Bravo, A. J. (2015). Mindfulness and emotional outcomes: Identifying subgroups of college students using latent profile analysis. *Personality and Individual Differences*, *76*, 33-38. https://doi.org/10.1016/j.paid.2014.11.009

Quaglia, J. T., Braun, S. E., Freeman, S. P., McDaniel, M. A. and Brown, K. W. (2016). Meta-analytic evidence for effects of mindfulness training on dimensions of self-reported dispositional mindfulness. *Psychological Assessment*, *28*(7), 803. https://doi.org/10.1037/pas0000268

Rhea, M. and Bettles, C. (2012). Future changes driving dietetics workforce supply and demand: future scan 2012-2022. *Journal of the Academy of Nutrition and Dietetics*, *112*(3), 10–24. https://doi.org/10.1016/j.jand.2011.12.008

Rosenzweig, S., Reibel, D. K., Greeson, J. M. and Edman, J. S. (2007). Mindfulness-based stress reduction is associated with improved glycemic control in type 2 diabetes mellitus: a pilot study. *Alternative Therapies in Health and Medicine*, *13*(5), 36. Access address: https://pubmed.ncbi.nlm.nih.gov/17900040/

Schaefer, J. T. and Zullo, M. D. (2017). US Registered Dietitian Nutritionists' Knowledge and Attitudes of Intuitive Eating and Use of Various Weight Management Practices. *Journal*

of the Academy of Nutrition and Dietetics, 117(9), 1419–1428. https://doi.org/10.1016/j.jand.2017.04.017

Shen, W., Long, L. M., Shih, C. H. and Ludy, M. J. (2020). A humanities-based explanation for the effects of emotional eating and perceived stress on food choice motives during the COVID-19 pandemic. *Nutrients*, *12*(9), 2712. https://doi.org/10.3390/nu12092712

Shin, A. C., Zheng, H. and Berthoud, H. R. (2009). An expanded view of energy homeostasis: neural integration of metabolic, cognitive, and emotional drives to eat. *Physiology and Behavior*, *97*(5), 572-580. https://doi.org/10.1016/j.physbeh.2009.02.010

Shriver, L. H., Dollar, J. M., Calkins, S. D., Keane, S. P., Shanahan, L. and Wideman, L. (2020). Emotional eating in adolescence: effects of emotion regulation, weight status and negative body image. *Nutrients*, *13*(1), 79-92. https://doi.org/10.3390/nu13010079

Smith, B. W., Shelley, B. M., Dalen, J., Wiggins, K., Tooley, E. and Bernard, J. (2008). A pilot study comparing the effects of mindfulness-based and cognitive-behavioral stress reduction. *The Journal of Alternative and Complementary Medicine*, *14*(3), 251-258. https://doi.org/10.1089/acm.2007.0641

Smith, J. M., Serier, K. N., Belon, K. E., Sebastian, R. M. and Smith, J. E. (2020). Evaluation of the relationships between dietary restraint, emotional eating, and intuitive eating moderated by sex. *Appetite*, *155*, 104817. https://doi.org/10.1016/j.appet.2020.104817

Spoor, S. T., Bekker, M. H., Van Strien, T. and van Heck, G. L. (2007). Relations between negative affect, coping, and emotional eating. *Appetite*, *48*(3), 368-376. https://doi.org/10.1016/j.appet.2006.10.005

Stice, E., Agras, W. S., Telch, C. F., Halmi, K. A., Mitchell, J. E. and Wilson, T. (2001). Subtyping binge eating-disordered women along dieting and negative affect dimensions. *The International Journal of Eating Disorders*, *30*(1), 11–27. https://doi.org/10.1002/eat.1050

Symmank, C., Mai, R., Hoffmann, S., Stok, F. M., Renner, B., Lien, N. and Rohm, H. (2017). Predictors of food decision making: A systematic interdisciplinary mapping (SIM) review. *Appetite*, *110*, 25-35. https://doi.org/10.1016/j.appet.2016.11.023

Teixeira, P. J., Patrick, H. and Mata, J. (2011). Why we eat what we eat: the role of autonomous motivation in eating behaviour regulation. *Nutrition Bulletin, 36*(1),102-107. https://doi.org/10.1111/j.1467-3010.2010.01876.x

Telch, C. F. (1997). Skills training treatment for adaptive affect regulation in a woman with binge-eating disorder. *International Journal of Eating Disorders*, *22*(1), 77-81. https://doi.org/10.1002/(sici)1098-108x(199707)22:1<77::aid-eat10>3.0.co;2-f

Tezcan, M., (2000), *Turkish Food Anthropology.* Ankara: Republic of Turkey Ministry of Culture Publications.

Timmerman, G. M. and Brown, A. (2012). The effect of a mindful restaurant eating intervention on weight management in women. *Journal of Nutrition Education and Behavior*, *44*(1), 22-28. https://doi.org/10.1016/j.jneb.2011.03.143

Torres, S. J. and Nowson, C. A. (2007). Relationship between stress, eating behavior, and obesity. *Nutrition*, *23*(11-12), 887-894. https://doi.org/10.1016/j.nut.2007.08.008

Wallis, D. J. and Hetherington, M. M. (2009). Emotions and eating. Self-reported and experimentally induced changes in food intake under stress. *Appetite, 52*(2), 355-362. https://doi.org/10.1016/j.appet.2008.11.007

Warren, J. M., Smith, N. and Ashwell, M. (2017). A structured literature review on the role of mindfulness, mindful eating and intuitive eating in changing eating behaviours: Effectiveness and associated potential mechanisms. *Nutrition Research Reviews, 30*(2), 272-283. https://doi.org/10.1017/S0954422417000154

Williams, J. M. G., Baer, R., Batchelor, M., Crane, R. S., Cullen, C., De Wilde, K., ... and Taylor, L. (2022). What Next After MBSR/MBCT? An Open Trial of an 8-Week Follow-on Program Exploring Mindfulness of Feeling Tone (vedanā). *Mindfulness*, *13*(8), 1931-1944. https://doi.org/10.1007/s12671-022-01929-0

Witt, A. A. and Lowe, M. R. (2014). Hedonic hunger and binge eating among women with eating disorders. *International Journal of Eating Disorders, 47*(3), 273-280. https://doi.org/10.1002/eat.22171

World Health Organization (2002, 23 March). The world health report 2002: reducing risks, promoting healthy life. Access address: https://books.google.com.tr/books?id=epuQi1Pt

Y_cCandlpg=PR9andots=N4M_8XBbTjandlrandpg=PT6#v=onepageandqandf=false

World Health Organization (2023, 19 March). Call for authors - Special issue: Interventions for the treatment of persons with obesity. Access address: https://www.who.int/news-room/articles-detail/call-for-authors-special-issue-interventions-for-the-treatment-of-persons-with-obesity

Yıldırım, A. and Şimşek, H. (2018). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri*. Ankara: Seçkin Yayıncılık.

Yönder Ertem, M. and Karakaş, M. (2021). Relationship Between Emotional Eating and Coping with Stress of Nursing Students. *Perspectives in Psychiatric Care*, *57*(2), 433-442. https://doi.org/10.1111/ppc.12599

Team Identification Level Among University Student Sports Fans: Its Relationship with Self-Esteem, Anger Level, and Anger Expression Styles

Spor Taraftarı Olan Üniversite Öğrencilerinde Takımla Özdeşleşme Düzeyinin Benlik Saygısı, Öfke Düzeyi ve Tarzı ile İlişkisi

Deniz ALÇI[1], Emin Oryal TAŞKIN[2], Erol ÖZMEN[2]

[1]Balıkesir Üniversitesi, Tıp Fakültesi, Balıkesir, Türkiye
[2]Celâl Bayar Üniversitesi, Tıp Fakültesi, Manisa, Türkiye

Objective: This study aimed to investigate how team identification among university students who follow sports is associated with self-esteem, anger level, and anger expression style, emphasizing potential implications for mental health.

Materials and Methods: A total of 573 students participated, all of whom reported regular involvement in sports-related activities. Data were gathered using standardized self-report instruments that measured team identification, self-esteem, and anger patterns. A cross-sectional design was adopted, and the resulting data were evaluated through relevant statistical analyses.

Results: The findings indicated that higher levels of team identification were linked to stronger outward anger expression and elevated anger levels. Notably, male students and those whose parents had lower educational backgrounds tended to demonstrate higher team identification. However, no significant relationship emerged between team identification and self-esteem, suggesting that intense allegiance to a sports team may not necessarily influence personal self-regard.

Conclusion: The results highlight the importance of recognizing team identification as a factor that can affect emotional balance and anger-related behaviors among sports-oriented university students. By considering these connections in academic and clinical settings, strategies for enhancing mental well-being and mitigating potential adverse outcomes—such as heightened anger responses—may be more effectively developed and implemented.

Keywords: Team Identification, Self-Esteem, Anger Level, Anger Expression Style, Sports Psychiatry

Amaç: Bu araştırmada, spor taraftarı olduklarını belirten üniversite öğrencilerinin takımla özdeşleşme (TÖ) düzeyleri ile benlik saygısı ve öfke ifade tarzları arasındaki ilişkinin incelenmesi amaçlanmıştır.

Gereç ve Yöntem: Çalışmaya toplam 573 üniversite öğrencisi katılmıştır. Katılımcıların TÖ düzeylerini belirlemek için Spor Taraftarı Özdeşleşme Ölçeği (STÖÖ), benlik saygısını ölçmek için Rosenberg Benlik Saygısı Ölçeği (RBSÖ) ve öfke özelliklerini değerlendirmek için Süreksiz-Sürekli Öfke ve Öfke İfade Tarzı Ölçeği (STÖ) kullanılmıştır. Araştırma kesitsel bir desenle yürütülmüş ve veriler istatistiksel analizler yoluyla incelenmiştir.

Bulgular: Bulgular, TÖ düzeyinin cinsiyet ve ebeveyn eğitim durumu gibi faktörlere göre anlamlı farklılık gösterdiğini ortaya koymuştur. Özellikle erkek öğrenciler ile ebeveyn eğitim düzeyi daha düşük olan gruplarda TÖ'nün daha yüksek olduğu görülmüştür. Spor aktivitelerine daha sık katılan öğrencilerde de TÖ düzeyinin arttığı tespit edilmiştir. TÖ ile öfke dışa vurumu ve sürekli öfke arasında pozitif bir ilişki belirlenmiş; bu durum, takımla özdeşleşme düzeyi yüksek olan taraftarların öfkeyi daha yoğun deneyimleme ve ifade etme eğiliminde olduğunu göstermektedir. Buna karşın, TÖ ile benlik saygısı arasında anlamlı bir ilişki saptanamamıştır.

Sonuç: Elde edilen bulgular, takımla özdeşleşmenin özellikle öfke yönetimi ve duygusal düzenleme üzerinde önemli etkileri olduğunu göstermektedir. Spor ortamlarında ortaya çıkan agresyonun önlenmesinde, takımla özdeşleşme düzeylerinin ve öfke ifade biçimlerinin dikkate alınması gerekebileceği düşünülmektedir.

Anahtar Kelimeler: Takımla Özdeşleşme, Benlik Saygısı, Öfke İfade Tarzları, Spor Taraftarı Davranışı, Spor Psikiyatrisi

Corresponding Author: Deniz Alçı **e-mail:** dkabadayi@yahoo.com
Received: 9 March 2025 **Accepted:** 26 March 2025 **DOI:** 10.33716/bmedj.165429

INTRODUCTION

One of the most popular pastimes in modern culture is watching athletic events. A significant portion of society engages with sports, from casual viewership to dedicated fandom Numerous previous research studies have examined the psychological aspects of sports fandom, attempting to distinguish between fans and spectators. While a spectator of sport is someone who watches sport in person or via different media channels, a fan is someone with a particular interest in one (or more) sporting team(s) or athletes who has positive feelings for them and pledges their support to them (Arslanoğlu, 2005). The degree to which an individual identifies with the team is what makes the difference.

Identification, the process of assimilating the characteristics, emotions, behaviors, values, and beliefs of another individual into one's own identity, serves as a subconscious maturation and defense mechanism employed by individuals from childhood through adulthood. The significant identifications established by an individual enhance their self-esteem (Erikson, 1994).

Team identification (TI), defining the psychological bond between a fan and their preferred team or athlete, is crucial for the self-representation of a sports enthusiast—an individual with a profound identification perceives their favored team/player as an extension of their identity. Their role as supporters is integral to their self-perception, leading them to regard themselves as superior to the fans of other clubs or players (Wann, 1997). TI underpins an individual's affiliation with a community where engagement holds a psychological value. In this regard, TI can be considered as a manifestation of one's social identity. Strong team identification can help fans feel more a part of a wider social circle, which can boost their self-esteem (Wann, 2006). Research indicates a correlation between strong team identification and self-esteem (Smith, 1988; Wann, 1994). Tajfel and Turner's social identity theory states that people are driven to preserve a positive identity and enhance their self-esteem (Hanrahan and Gallois, 1993).

Highly identified fans perceive their team as an integral part of their identity, contributing to their sense of belonging and collective self-worth. TI among sports fans may boost self-esteem, bolstered by a developed sense of belonging and acceptance, which are recognized contributors to self-esteem (Benish-Weisman et al., 2015).

Team identification (TI) among sports fans may boost self-esteem, bolstered by a developed sense of belonging and acceptance, which are recognized contributors to self-esteem (Benish-Weisman et al., 2015). To maintain this social identity, fans with an intense connection to a particular team or player may exhibit heightened reactivity during competitions, with extreme responses anticipated (Günay and Tiryaki, 2003). Additionally, when their team loses, strongly identified supporters experience a sense of loss that, in certain situations, might result in aggressive conduct (Demirel et al., 2007).

While "aggression" is not classified as an independent clinical entity or illness in psychiatry, it frequently manifests as a symptom in numerous psychiatric disorders. Anger is an emotional state that drives an individual to engage in behaviors intended to warn, frighten, or assault individuals they perceive as adversarial or menacing (Kennedy, 1992). Anger can evolve into destructive and aggressive behaviors (Robbins, 2000). After losing, strongly identified fans are more likely to attempt to re-establish their identities by acting hostilely and negatively toward the opposition team's players or supporters, but they are unable to avoid their team in order to regain their confidence (Wann, 1993). Prior research has indicated an association between the level of TI and aggressive conduct (Berkowitz, 1993; Wann, 1993; Wann et al., 1999). Furthermore, research examining the determinants of aggressive conduct and the triggers of aggression among sports enthusiasts in Turkey has indicated that aggression is inversely

correlated with age and educational attainment, and is associated with variables such as the frequency of media engagement with the team, the actions of rival players and referees, and the team's performance (Giray and Gültekin Salman, 2008). Despite the prominence of sport in daily life in Turkey, there is a scarcity of studies examining the psychological dimensions of sports spectatorship. The present study investigates the relationship of TI levels with self-esteem, anger levels, and anger expression styles of sports fans among university students.

MATERIALS AND METHODS

Procedure

The present study was conducted after being granted the approval of the Celal Bayar Univercity Local Ethics Committee and the permission of the dean's offices of the faculties in which the students were studying before the application. Participants provided written informed consent.

Sample

The universe of the study was all first-year students at the Faculty of Medicine and Faculty of Economics and Administrative Sciences. Included in the study were students who i) agreed to participate voluntarily in the study, ii) had the mental and physical capacity to complete the scales, and iii) stated their support of a sports club (or team), while those with any condition that prevented them from carrying out the tasks defined in the study in a healthy way were excluded.

Clinical Evaluation Tools

Sports Spectator Identification Scale

The Sports Spectator Identification Scale (SSIS) was developed by Wann and Bronscombe in 1993 to distinguish between those who support a sports team as spectators and those who can be considered sports fans and to measure the level of identification of fans with their team. The Cronbach's alpha internal consistency coefficient of the original scale was 0.91(Wann and Branscombe, 1993), while the validity and reliability of the Turkish version of the scale carried out by Günay and Tiryaki in 2003 recorded a Cronbach's alpha coefficient of 0.87, and 0.85 based on the test–retest reliability method (Günay and Tiryaki, 2003). The scale comprises seven Likert-type items that are scored between 1 and 8, while high scores indicate a greater identification with one's team.

Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSES) was developed by Morris Rosenberg in 1963 (Rosenberg, 2015), while the validity and reliability study of the Turkish version of the scale was performed by Çuhadaroğlu (Çuhadaroğlu, 1986). The "self-esteem subscale" used in the present study comprises 10 items with positive and negative statements arranged according to the Guttman measurement method. Scores of 0–1 indicate high self-esteem, 2–4 indicate moderate self-esteem, and 5–6 indicate low self-esteem.

State-Trait Anger Expression Inventory

The State-Trait Anger Expression Inventory (STAXI) is a self-assessment tool for the measurement of expressions of anger and emotion. It was developed in 1983 by Spielberger, who analyzed the emotion of anger in two categories, "continuity" and "contingency," and it was adapted to Turkish by Özer (Özer, 1994; Spielberger, 1983). The scale comprises four subscales, including "anger-in," "anger-out," "anger control," and "trait anger," and 34 items. It does not produce an overall score, as the items of each subscale are considered only the total score for that subscale.

Application

The scales were applied to all students who attended classes over 15 minutes before the start of the classes. The administration of the scales was conducted in a face-to-face setting during class hours in a quiet and controlled environment. Participants were given

approximately 10–15 minutes to complete the questionnaires. Statistical evaluations were made only of the data provided by the participants who identified themselves as "sports fans."

The Sociodemographic Data Form, SSIS, RSES, and STAXI were applied to 573 students who were identified as sports fans among all the students who attended the courses.

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. Informed consent was obtained from all subjects involved in the study.

Statistical Analysis

The SPSS for Windows (Version 15.0. Chicago, SPSS Inc.) statistical software package was used for the statistical analysis. The data were first analyzed according to descriptive statistics (mean, standard deviation, number, percentage distribution, etc.), with a Chi-square test applied to categorical variables and a T-test for independent groups, or an ANOVA (Mann–Whitney U test and Kruskal–Wallis test when normal distribution conditions were not met) for numerical variables. Pearson's correlation analysis was used to compare scale scores with no cut-off value (or Spearman's correlation test when parametric conditions were not met).

RESULTS

Sociodemographic and Clinical Characteristics of the Study Group

Included in the study were 113 students from the Faculty of Medicine and 460 students from the Faculty of Economics and Administrative Sciences. Of the total 573 participants, 296 (51.7%) were male and 277 (48.3%) were female, and the mean age was 18.82 ± 1.275 years. Table 1 presents the sociodemographic and clinical characteristics of the participants.

To evaluate the participants' relationships with sports, they were first asked about any involvement in a sports branch and whether they held an athlete's license. The results revealed that 35.6% (i.e., 204 students) took part in regular physical exercise and 24.7% (i.e., 157 students) had a regular training routine in a particular sporting branch. Furthermore, 137 students (23.9%) had an amateur or professional athlete's license.

Among the participants, 49.0% (281 students) stated that they resorted to verbal violence, such as swearing, from time to time when watching sports competitions, whereas 54 of them (9.4%) stated that they resorted to physical violence, such as getting involved in fights. The average SSIS score of the 573 students included in the study was 33.76, with an SD (standard deviation) of 13.78. Table 2 presents the average SSIS and RSES scores.

Comparison of Sports Spectator Identification Scale and Sociodemographic Data

The mean SSIS score was 38.61, with an SD of 12.81, for the 296 male participants and 28.25, with an SD of 12.88, for the 277 female participants, which demonstrates a statistically significant difference. ($p = 0.000$, $F = 0.52$).

When evaluating the educational levels of the participants' parents, it was found that students whose fathers had a high school education had a higher average SSIS score compared to the group whose fathers had a university education ($p = 0.007$). The level of identification with a specific team among the students whose fathers were secondary school graduates or below was higher than that among those whose fathers were university graduates, with a p-value close to statistical significance ($p = 0.061$). The level of identification with a team among the students whose mothers were high school graduates and secondary school graduates or below was higher than that among those whose mothers were university graduates ($p = 0.016$, $p = 0.001$).

No significant correlation was found between SSIS scores and variables such as the financial status of the family, the loss of parents during childhood, separation from one's parents, place of residence, place of childhood, faculty in which they study, history of psychiatric disorder, history of psychiatric disorders in a family member, or history of chronic physical disability.

Table 1. *Comparison of Team Identification Scores According to Sociodemographic and Sports-related Characteristics of Participants*

Variable	Category	n	Percentage (%)	SSIS	p	t/F/Z
Gender	Female	277	48.3	28.25±12.88	0.000*	t=9.348
	Male	296	51.7	38.61±12.81		
Age	Under 19	290	50.7	32.78±13.9	0.085*	t=-1.726
	19 And Above	283	49.3	34.77±13.51		
Faculty	Medicine	113	19.7	32.95±13.22	0.423***	Z=0.801
	Economics	460	80.3	33.96±13.91		
Financial Situation	Bad+Average	438	80.0	33.18±13.72	0.130*	t=-1.518
	Good	112	20.0	35.38±13.81		
Parental Loss	Yes	38	6.6	32.00±14.27	0.421***	Z=0.805
	No	535	93.4	33.89±13.75		
Parental Separation	Yes	62	10.8	33.51±15.52	0.941***	Z=0.941
	No	511	89.2	33.79±13.57		
location of upbringing	Village+District	280	48.8	32.81±14.13	0.107*	t=-1.613
	City Center	293	51.2	34.67±13.39		
location of residency	Village+District	265	7.3	32.90±14.19	0.169*	t=-1.376
	City Center	308	51.1	34.49±13.39		
Parental Education (Father)	Secondary School and Below (a)	232	40.4	33.17±13.47	0.007** (b>c)	
	High School (b)	186	32.5	36.23±13.23		
	University (c)	155	27.1	31.70±14.52		
Parental Education (Mother)	Secondary School and Below	328	57.2	33.83±13.76	0.001**** (b>c a>c)	
	High School	156	27.2	36.14±13.33		
	University	89	15.5	29.34±13.78		
Psychiatric History	Yes	37	6.5	36.38±13.38	0.23***	Z=1.194
	No	536	93.5	33.58±13.80		
Family Psychiatric History	Yes	45	7.9	34.84±14.67	0.551***	Z=0.548
	No	528	92.1	33.67±13.71		
Physical Disease	Yes	558	97.4	28.00±18.11	0.167***	Z=1.382
	No	15	2.6	33.92±13.63		
Regular Exercise	Yes	204	35.6	38.13±13.41	0.000*	t=5.796
	No	369	64.4	31.35±13.40		
Regular Training	Yes	157	24.7	38.99±12.8	0.000*	t=5.729
	No	416	72.6	31,79±13.62		
Licensed Athlete	Yes	137	23.9	38.68±13.23	0.000*	t=4.882
	No	436	76.1	32.22±13.60		

*Student T test, **One Way ANOVA (posthoc Tukey), ***Man-Whitney U test, ****Kruskal-Wallis test

Note: This table compares SSIS scores based on participants' demographic and clinical characteristics, including gender, age, faculty, financial status, and family background.

The mean scores of the SSIS were higher in participants who practiced sports regularly than in participants who did not, also in participants who regularly trained in a sports branch than who did not, and in participants who had an athlete's license than who did not have an athlete's license (p = 0.000). Those who stated that they resorted to verbal and/or physical violence while watching sporting events had higher average SSIS scores than those who stated that they did not resort to violence (p = 0.000) (Table 3). Table 1 presents a comparison of the SSIS scores and the sociodemographic status of the students included in the study.

Table 2. SSIS and STAXI scores of the participants

Scale	Mean	Minimum	Maximum	Standard Deviation
Ssis	33.76	7	56	13.78
Trait Anger	22.07	10	40	5.91
State Anger	23.52	11	35	3.58
Anger Control	21.74	8	32	5.20
Anger-Out	16.84	8	32	4.45
Anger-In	17.26	8	32	4.26

Note: This table reports the mean, minimum, maximum, and standard deviation of SSIS and State-Trait Anger Expression Inventory (STAXI) scores, covering dimensions such as trait anger, state anger, anger control, anger-out, and anger-in.

Table 3. Comparison of Team Identification Scores According to Participants' Verbal and Physical Aggression Behaviors at Sporting Events

Variable	Category	n	%	SSIS	p	t
Verbal Violance at Sports Events	Yes	281	49.0	40.05±11.98	0.000*	11.982
	No	292	51.0	27.71±12.65		
Phsical Violance at Sports Events	Yes	54	9.4	43.30±13.21	0.000*	5.476
	No	519	90.6	32.77±13.47		

***student T test**

Note: The table presents SSIS scores for participants who have and have not attended verbal or physical violence incidents during sports events, with an emphasis on significant differences.

Comparison of Sports Spectator Identification Scale and Rosenberg Self-Esteem Scale

When evaluating the scores of the RSES subscale, among the 364 participants identified with high self-esteem, the average SSIS score was 34.29, with an SD of 13.85. Among the 185 participants identified with moderate self-esteem, the average SSIS score was 33.24, with an SD of 13.23. Lastly, among the 24 participants identified with low self-esteem, the average SSIS score was 29.87, with an SD of 16.52. No statistically significant correlation was identified between the RSES scores and the SSIS scores.

Table 4. *Comparison of the RSES and SSIS scores*

RSES	SSIS	sd*	F	p
Low	29,87	16,52		
Moderate	33,24	13,23	1,353	0,259
High	34,29	13,85		

***standart deviation**

Note: This table shows the relationship between self-esteem levels measured by the RSES and team identification levels assessed by the SSIS, including statistical significance and standard deviations.

Table 5. *Comparision of the STAXI and SSIS scores*

	Trait Anger	State Anger	Anger Control	Anger-Out	Anger-In
SSIS	0,142	-0,016	0,005	0,092	-0,47
p*	0,001	0,707	0,900	0,027	0,257

*** pearson correlation coefficient**

Note: This table displays the correlation analysis between SSIS scores and various STAXI components (e.g., trait anger, state anger, anger control, anger-out, and anger-in), along with p-values indicating statistical significance.

Comparison of Sports Spectator Identification Scale and State-Trait Anger Expression Inventory

When the subscales of the STAXI were compared with the level of identification with the team, as the students' level of identification with their favorite sports team/club increased, their levels of trait anger also increased. This relationship was found to be statistically significant ($p = 0.001$).

A positive correlation was found between the participants' SSIS scores and anger-out subscale scores ($p = 0.027$), while no significant correlation was found between the trait anger, anger-in, and anger control subscale scores. Table 5 presents the comparison of SSIS scores and STAXI scores of the participants.

DISCUSSION

Studies of aggressive behavior patterns among sports fans have reported that sociodemographic components, such as gender, and the psychological processes of the individual may have a synergistic effect. In the present study, it was found that male participants had higher levels of TI than female participants ($p = 0.000$). Studies conducted in Turkey have found that men tend to have higher levels of TI and feelings of team-related belonging than women (Demirel et al., 2007). In the validity and reliability study of the original form of the SSIS, no difference was found between the levels of identification of the female and male students (Wann and Branscombe, 1993), while in the validity and reliability study of the Turkish version of the scale, the identification scores of male sports fans were found to be statistically significantly higher than those of female sports fans (Günay and Tiryaki, 2003). However, there are studies in the literature that have found no significant difference in TI levels between men and women (Wann et al., 1999). These conflicting results may stem from the prevalence of studies conducted abroad, primarily focused on sports fans supporting sports teams affiliated with their educational institutions, and the inclusion of non-male-dominated sports. These factors may contribute to women participants in the mentioned studies experiencing similar levels of TI and feelings of belonging to the supported team as their male counterparts. Furthermore, the male-dominated societal structure, differences in social lives between men and women, and the perception of football as the predominant sport may explain the influence of gender on fan behavior in studies conducted in Turkey. Research on gender analysis in sports institutions indicates unequal conditions between men and women in accessing resources within the sports environment, highlighting that sports tend to cater to the interests and needs of dominant social groups in society (Bulgu, 2012).

In a study of football fans investigating the relationship between the educational status of the participants and their reasons for not spectating at live matches, it was found that the main reason for not going to live events was ticket prices (43.5%), while the potential for violence at stadiums during matches (31.1%) was the major reason given by those with a bachelor's degree (Agcaoglu et al., 2013). In a study conducted by Özmaden regarding supporters attending football matches in stadiums, the rate of high school graduates was determined as 44.3%, university graduates as 36.9%, and middle school graduates as 9.2% (Özmaden, 2005). These rates are similar to the educational levels of the participants' parents, indicating no significant differences in terms of educational status in our study. In the present study, team identification levels were lower among students whose fathers were university graduates compared to those whose fathers were high school or secondary school graduates. Similarly, the highest level of identification with a team was found among students whose mothers were high school graduates and lowest among the students whose mothers were university graduates. This result may be associated with the significant influence of both individuals' and their parents' educational levels on their sociocultural status, particularly among individuals who are still students. The sociocultural level of individuals who maintain economic ties with their parents due to their ongoing education may not have diverged significantly from their parents.

Individuals who are currently enrolled in university education and who have parents with higher levels of education tend to experience a decrease in their level of team following and identification due to their discomfort with incidents of violence during matches. On the other hand, students from families with lower levels of education may encounter difficulties in engaging in fan behavior due to financial constraints, which could lead to potentially lower levels of identification.

The positive correlation observed between participants' engagement in sports routines and their levels of identification may be attributed to an increased interest and curiosity in sports, along with a higher degree of active participation in sports. Consequently, this can result in an enhanced sense of identification. In a 2015 study, Sivrikaya reported that normal fan behavior was positively correlated with the exercise habits of the individual, whereas fanaticism was negatively correlated with physical activity (Sivrikaya, 2015). A review of many studies in the literature reveals that being a sports fan and identifying with a team can have potential consequences for aggression (Wann and Branscombe, 1990). A strong identification with a team may result in a negative perception of those who support different teams, manifesting even in aggressive behaviors (Feshbach, 1990). According to a survey conducted in the United States, 96% of individuals who participated in sporting events indicated that they had personally been involved in or witnessed an aggressive incident (Iso-Ahola and Hatfield, 1986). In many studies conducted by Branscombe and Wann, sports fans with a high level of identification with their teams are more prone to aggressive behavior than those with lower levels of identification (Branscombe and Wann, 1994; Wann, 1993; Wann et al., 2003). In a study of the level of instrumental and hostile aggression among sports fans, both hostile and instrumental aggression levels were found to be higher among sports fans with a high level of identification with their teams (Wann et al., 1999). It has been found that highly identified sports fans are more likely to exhibit a probability of causing physical harm to individuals and players supporting the opposing team than fans with lower levels of identification (Wann et al., 1999). In a study comparing the levels of sports fanaticism with the Buss–Perry Aggression Questionnaire scores among sports fans, a positive correlation was found between the level of sports fanaticism and both verbal and physical aggression among male sports fans (Wann et al., 2002). Dimmock and Grove did not find any differences between highly identified and lowly identified fans in terms of aggressive behavior. However, it has been noted that highly identified fans have lower levels of self-control in controlling their behaviors (Dimmock and Grove, 2005; Wann et al.,1994).

Trait anger refers to the frequency with which situational anger is experienced, whereas anger-out measures the ease of expressing anger. An individual who identifies strongly with a sports team may experience emotional lability during a sporting event, which may prevent them from controlling their behaviors, and those who feel that their identity is under threat may experience emotions that lead to a loss of behavioral control (Wann et al., 2001). In order to maintain their self-esteem following their team's failure, highly identified fans attempt to elevate their diminished self-esteem through hostile behaviors directed toward players or supporters of the opposing team (Wann, 1993; Wann et al., 1999).

According to the findings of this study, fans who have a higher level of TI differ from fans with lower TI in terms of anger style, characterized by heightened levels of anger-out, and structural anger, characterized by elevated levels of trait anger. This result indicates that in our sample, fans with high levels of TI are not only inclined toward aggressive behavior due to the atmosphere created by the sporting event, but they are also more predisposed to experiencing anger than fans with lower identification levels.

Fink found that being a fan of a successful team and the feelings of success raised one's self-esteem and served as the motivation for a strong identification with one's team (Fink et al.,

2002). Branscombe and Wann reported a positive correlation between the level of identification with a team and self-esteem and stated that the sense of commitment that an individual feels to something greater than themselves can increase self-esteem and decrease the frequency of depression (Branscombe and Wann, 1991). Similarly, Sarı found a positive relationship between the level of commitment to a team, self-esteem, and life satisfaction (Sarı et al., 2011).

Based on the analysis of the relationship between TI and positive and negative emotions, it has been determined that there is a positive association between high TI and emotions such as happiness, joy, satisfaction, life satisfaction, and contentment. Conversely, there is a negative association between high TI and negative emotions, such as unhappiness, regret, worthlessness, sensitivity, hopelessness, and feelings of exclusion (Branscombe and Wann, 1991). In light of these findings, it is concluded that the individual's distancing from feelings of loneliness and the sense of belonging positively affect their self-concept. When assessing the positive correlation between TI and self-esteem, an alternative perspective suggests that individuals who already possess high levels of self-esteem are more inclined to develop a stronger identification with sports teams. Individuals with low self-esteem tend to refrain from identifying themselves as supporters of a team due to the fear of ridicule or confrontation with an opponent. On the other hand, individuals with high self-esteem are not hesitant to express their support for the team they endorse (Wann et al., 2000). However, considering that sports fans come from very different social backgrounds and lifestyles, it is observed that not all individuals with high TI are likely to have high self-esteem (Branscombe and Wann, 1991). In this study, there was no significant correlation between the level of self-esteem and the level of TI, which may be attributed to the limited number of participants characterized by low self-esteem among the total number of participants (n = 24, 4.2%). As stated by Wann, TI is a factor that affects collective self-esteem rather than individual self-esteem (Wann, 1994).

Limitations

The study's cross-sectional methodology precludes the establishment of causality between team identification (TI) and emotional consequences, such as anger. Although our hypothesis was that anger would be more powerfully evoked by higher levels of TI, it is also plausible that those who are prone to anger are more likely to strongly identify with a team. Future studies utilizing experimental or longitudinal methods would be beneficial to alleviate this issue by determining the directionality of this link.

Our study included a rather uniform student cohort, unlike the varied fan groups present in stadiums. The homogeneity within the selected group constitutes a limitation on self-esteem levels. Furthermore, it is crucial to recognize that self-esteem levels can be affected by different variables, including personal abilities, familial background, and social relationships, which, beyond the concept of TI, also constitutes a limitation of our study. Future study utilizing longitudinal or experimental methods will be beneficial in establishing the directionality of this link.

The present study's inability to adequately define the target of anger regarding to team identification is another limitation. The source of the participants' stated anger—whether aimed toward opposing team fans, officials, or other elements inside the sporting context—remains uncertain. Future research should identify the targets of anger to enhance the comprehension of emotional expression dynamics in the context of sports fandom.

CONCLUSION

In the present research, we examined TI in connection to self-esteem, trait anger, and anger expression styles against the backdrop of sporting events that frequently involve violent incidents and participation from a significant portion of society. In summary, this study highlights those higher levels of team identification among university sports fans are

positively correlated with increased levels of trait anger and externalized anger (anger-out), whereas no significant correlation was found between team identification and individual self-esteem.

We observed a positive relationship between team identification levels and trait anger, a structural component of anger, as well as the externalizing dimension of anger within the context of anger expression styles. Our data indicate there is no significant positive or negative relationship between sports team identification and self-esteem levels.

Given the continuing threat of violence at sporting events, which has resulted in significant damages both nationally and globally in recent years, numerous strategies will need to be utilized to help solve this issue. It is imperative to provide psychological assistance and psycho-education for their mental awareness to athletes and trainers, especially those with whom fans resonate. Based on these findings, it would be beneficial to develop and promote psychoeducational programs specifically aimed at anger management and healthy emotional expression among university students and sports fans. Such interventions could play a critical role in preventing violence incidents during sports events.

Another proposed preventive intervention is the implementation of anger management training and the instruction of healthy emotional expression skills inside fan groups characterized by strong group identification, to avert the escalation of rage among sports fans into violent incidents. Access to mental health care should also be enabled for those involved in violent incidents.

Finally, it is expedient to encourage fan engagement in sporting events, not only as spectators but also as active participants in the sport, to cultivate a more positive and inclusive sports culture.

Authorship Contributions: All authors have the equal contributions. All authors read and approved the final manuscript.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest: The authors have no conflicts of interest to declare.

Ethics approval and consent to participate: Ethical approval for this study was obtained from Celal Bayar University clinical research ethics committee on 29.06.2016 Decision number: 20478486-246.

The study was conducted in line with the principles of the "Helsinki Declaration."

REFERENCES

Arslanoğlu, K. (2005). *Futbolun psikiyatrisi*. İthaki Yayınları. İstanbul.

Benish-Weisman, M., Daniel, E., Schiefer, D., Möllering, A., and Knafo-Noam, A. (2015). Multiple social identifications and adolescents' self-esteem. *Journal of Adolescence, 44*, 21–31.

Berkowitz, L. (1993). Aggression: *Its causes, consequences, and control*. McGraw-Hill Book Company.

Branscombe, N. R., and Wann, D. L. (1991). The positive social and self-concept consequences of sports team identification. *Journal of Sport and Social Issues, 15*(2), 115–127.

Branscombe, N. R., and Wann, D. L. (1992). Physiological arousal and reactions to outgroup members during competitions that implicate an important social identity. *Aggressive Behavior, 18*(2), 85–93.

Branscombe, N. R., and Wann, D. L. (1994). Collective self-esteem consequences of outgroup derogation when a valued social identity is on trial. *European Journal of Social Psychology, 24*(6), 641–657.

Bulgu, N. (2012). Futbolda şiddetin erkeklik anlamları. *Spor Bilimleri Dergisi, 23*(4), 207–219.

Çuhadaroğlu, F. (1986). *Adolesanlarda benlik saygısı*. Uzmanlık Tezi, Hacettepe Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı, Ankara.

Demirel, M., Karahan, B. G., and Hüseyin, Ü. (2007). Farklı üniversitelerdeki spor taraftarlarının takımları ile özdeşleşme düzeyleri. *Beden Eğitimi ve Spor Bilimleri Dergisi, 1*(2), 76–86.

Dimmock, J. A., and Grove, J. R. (2005). Relationship of fan identification to determinants of aggression. *Journal of Applied Sport Psychology, 17*(1), 37–47.

Erikson, E. H. (1994). *Identity and the life cycle*. W. W. Norton and Company.

Feshbach, S. (1990). Psychology, human violence, and the search for peace: Issues in science and social values. *Journal of Social Issues, 46*(1), 183–198.

Fink, J. S., Trail, G. T., and Anderson, D. F. (2002). An examination of team identification: Which motives are most salient to its existence? *International Sports Journal, 6*(2), 195.

Giray, C., and Gültekin Salman, G. (2008). Fenerbahçe taraftarlarının takımlarına yönelik psikolojik bağlılıkları ile saldırganlıkla ilgili tutumları arasındaki ilişki. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi, 7*(13), 147-157.

Günay, N., and Tiryaki, Ş. (2003). Spor Taraftari Özdeşleşme Ölçeğinin (Stöö) Geçerlik Ve Güvenirlik Çalişmasi. *Spor Bilimleri Dergisi, 14*(1), 14–26.

Hanrahan, S., and Gallois, C. (1993). Social interactions. In *Handbook of Research on Sport Psychology* (pp. 623–646).

Iso-Ahola, S. E., and Hatfield, B. (1986). *Psychology of sports: A social psychological approach*. Wm. C. Brown Publishers.

Kennedy, H. G. (1992). Anger and irritability. *The British Journal of Psychiatry, 161*(2), 145–153.

Özer, A. K. (1994). Sürekli öfke (SL-Öfke) ve öfke ifade tarzı (Öfke-tarz) ölçekleri ön çalışması. *Türk Psikoloji Dergisi, 9*(31), 26–35.

Özmaden, M. (2005). Futbol seyircilerine göre rakip seyirci davranışlarının seyirci saldırganlığına etkileri. *Gazi Üniversitesi Kastamonu Eğitim Dergisi, 13*(2), 663–674.

Robbins, P. R. (2000). *Anger, aggression, and violence: An interdisciplinary approach*. McFarland and Company. Inc.

Rosenberg, M. (2015). *Society and the adolescent self-image*. Princeton University Press.

Sarı, İ., Eskiler, E., and Soyer, F. (2011). Does psychological commitment to team enhance self-esteem? An easy way to raise self-esteem. *International Journal of Humanities and Social Science, 1*(19), 187–196.

Sivrikaya, M. H. (2015). Üniversite öğrencilerinin düzenli egzersiz yapmaya yönelik davranış değiştirme istekleri ile taraftarlık seviyeleri arasındaki ilişki (Doctoral dissertation, Atatürk Üniversitesi, Sağlık Bilimleri Enstitüsü).

Smith, G. J. (1988). The noble sports fan. *Journal of Sport and Social Issues, 12*(1), 54–65.

Spielberger, C. D. (1983). *State-trait anxiety inventory for adults*.

Wann, D. L. (1993). Aggression among highly identified spectators as a function of their need to maintain positive social identity. *Journal of Sport and Social Issues, 17*(2), 134–143.

Wann, D. L. (1994). The "noble" sports fan: The

relationships between team identification, self-esteem, and aggression. *Perceptual and Motor Skills, 78*(3), 864–866.

Wann, D. L. (2006). Understanding the positive social psychological benefits of sport team identification: The team identification-social psychological health model. *Group Dynamics: Theory, Research, and Practice, 10*(4), 272.

Wann, D. L., and Branscombe, N. R. (1990). Person perception when aggressive or nonaggressive sports are primed. *Aggressive Behavior, 16*(1), 27–32.

Wann, D. L., and Branscombe, N. R. (1993). Sports fans: Measuring degree of identification with their team. *International Journal of Sport Psychology*.

Wann, D. L., Carlson, J. D., and Schrader, M. P. (1999). The impact of team identification on the hostile and instrumental verbal aggression of sport spectators. *Journal of Social Behavior and Personality, 14*(2), 279–286.

Wann, D. L., Dolan, T. J., MeGeorge, K. K., and Allison, J. A. (1994). Relationships between spectator identification and spectators' perceptions of influence, spectators' emotions, and competition outcome. *Journal of Sport and Exercise Psychology, 16*(4), 347–364.

Wann, D. L., Haynes, G., McLean, B., and Pullen, P. (2003). Sport team identification and willingness to consider anonymous acts of hostile aggression. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression, 29*(5), 406–413.

Wann, D. L., Melnick, M. J., Russell, G. W., and Pease, D. G. (2001). *Sport fans: The psychology and social impact of spectators*. Routledge.

Wann, D. L., Peterson, R. R., Cothran, C., and Dykes, M. (1999). Sport fan aggression and anonymity: The importance of team identification. *Social Behavior and Personality: An International Journal, 27*(6), 597–602.

Wann, D. L., Royalty, J., and Roberts, A. (2000). The self-presentation of sport fans: Investigating the importance of team identification and self-esteem. *Journal of Sport Behavior, 23*(2), 198.

Wann, D. L., Shelton, S., Smith, T., and Walker, R. (2002). Relationship between team identification and trait aggression: A replication. *Perceptual and Motor Skills, 94*(2), 595–598.

Retrospective Investigation of Patients Referred to the Emergency Department with Chest Pain

Göğüs Ağrısı Nedeniyle Acil Servise Sevk Edilen Hastaların Retrospektif İncelenmesi

Ramazan KIYAK [1], Bahadır ÇAĞLAR [1], Süha SERİN [1], Meliha FINDIK [1]

[1] Balıkesir University, Faculty of Medicine, Department of Emergency, Balıkesir, Türkiyet

Objective: Chest pain is one of the most common symptoms in emergency department visits, family health centres and pre-hospital emergency health services. The underlying causes can range from myalgia to psychological pain, heart attack to pneumothorax. If the underlying cause is missed, it results in serious mortality and morbidity. Therefore, the management of patients presenting with chest pain becomes very important.

Materials and Methods: All patients who were referred to the emergency department with a prediagnosis of chest pain from an external centre, met the inclusion criteria, and admitted to our hospital between 01.01.2020-31.08.2023 were included in our retrospective study conducted at Balıkesir University Faculty of Medicine, Department of Emergency Medicine.

Results: The highest number of referrals were from C-role group hospitals and most of the referrals were between 00:00-04:00. It was observed that the applications were more common on weekdays and most common on Fridays. The most common complaint was chest pain and palpitations in February. It was found that the majority of the referred patients were consulted and then hospitalised and the most common hospitalisations were in February. It was observed that the most common hospitalisations were in cardiology and coronary intensive care.

Conclusion: By analysing the data we obtained, it was aimed to contribute to the effective use of services in emergency departments and to contribute to the pre-hospital and in-hospital management of patients referred with chest pain.

Key words: Emergency Department; Emergency Medical Services; Chest Pain

Amaç: Göğüs ağrısı acil servis başvurularında, aile sağlığı merkezlerinde ve hastane öncesi acil sağlık hizmetlerinde en sık görülen semptomlardan biridir. Altta yatan nedenler miyaljiden psikolojik ağrıya, kalp krizinden pnömotoraksa kadar değişebilir. Altta yatan neden atlandığında ciddi mortalite ve morbiditeye neden olur. Bu nedenle göğüs ağrısı ile başvuran hastaların yönetimi oldukça önem kazanmaktadır.

Gereç ve Yöntem: Balıkesir Üniversitesi Tıp Fakültesi Acil Tıp Anabilim Dalı'nda yürütülen retrospektif çalışmamıza, dış bir merkezden göğüs ağrısı ön tanısı ile acil servise sevk edilen, dahil etme kriterlerini karşılayan ve 01.01.2020-31.08.2023 tarihleri arasında hastanemize başvuran tüm hastalar dahil edildi.

Bulgular: En fazla sevk C-rol grubu hastanelerden yapılmış olup, sevklerin çoğu 00:00-04:00 saatleri arasında olmuştur. Başvuruların hafta içi ve en sık cuma günleri olduğu gözlenmiştir. Şubat ayında en sık görülen şikayet göğüs ağrısı ve çarpıntıydı. Sevk edilen hastaların çoğunluğunun konsültasyonla hastaneye yatırıldığı ve en sık hastaneye yatışın Şubat ayında olduğu görüldü. En sık hastaneye yatışın kardiyoloji ve koroner yoğun bakımda olduğu görüldü.

Sonuç: Elde ettiğimiz verileri analiz ederek acil servislerdeki hizmetlerin etkin kullanımına katkıda bulunmak ve göğüs ağrısıyla sevk edilen hastaların hastane öncesi ve hastane içi yönetimine katkıda bulunmak amaçlandı.

Anahtar Kelimeler: Acil Tıp; Acil Tıbbi Hizmetler; Göğüs Ağrısı

Corresponding Author: Ramazan Kıyak **e-mail:** kiyak1903@hotmail.com
Received: 10 March 2025 **Accepted:** 17 April 2025 **DOI:** 10.33716/bmedj.1655154

INTRODUCTION

Chest pain represents the most prevalent symptom among patients presenting to the emergency department (ED) and emergency medical services (EMS), accounting for approximately 5-8% of all emergency admissions (Kontos and Jesse, 2000). In recent years, there has been a notable surge in the demand for pre-hospital care and ambulance referrals of patients presenting with chest pain. This situation is of critical importance in both FHC and pre-hospital FHC. As life expectancy increases and comorbidity rates rise, coupled with the ease of access to acute hospital services at any time of the day, the demand for such services is correspondingly higher. The rise in demand is a significant challenge not only in our country but also in many countries in the Western World (Lindskouid et al., 2023). Despite chest pain being the most common presenting symptom, the majority of symptoms are attributable to non-cardiac causes. This underscores the vital role of the emergency physician (EP) in rapidly and accurately diagnosing and treating life-threatening conditions such as acute coronary syndrome (ACS), pulmonary embolism (PE), and aortic dissection(Id et al., 2021) (Wolinsky, 2017). The standard approach to the evaluation of patients presenting with chest pain comprises a history, physical examination and electrocardiography (ECG) (Kontos and Jesse, 2000). Despite the fact that the examination is largely unremarkable, there are no examination findings that are sufficiently sensitive or specific to diagnose or exclude acute coronary syndrome (Bhatt, 2023). Accordingly, the current guidelines recommend the performance of an ECG upon admission (within the initial 10 minutes) and the subsequent examination of cardiac troponin (HS-cTn) values following the administration of a focused history. The risk of coronary syndrome increases with age. It is therefore important to enquire about other significant risk factors, such as hypertension and aortic dissection. Despite the existence of contemporary scoring systems designed to ascertain whether an underlying condition is of cardiovascular origin, clinical evaluation remains the optimal approach (Prendergast et al., 2010). However, it is challenging to distinguish between ACS and other causes of chest discomfort based on clinical signs or ECG findings alone. The majority of guidelines explicitly indicate that general practitioners should promptly refer all patients with suspected ACS to higher-level healthcare organisations, or even circumvent general practitioners to prevent time-consuming delays and minimise the risk of myocardial cell necrosis. Nevertheless, while approximately 20-40% of patients with chest pain are referred for safe exclusion of ACS, only one-fifth of these referred patients have severe disease (Hoorweg et al., 2017). However, there is a paucity of knowledge in this area. The reasons behind general practitioners' decisions to refer patients with chest pain (Bruyninckx et al., 2009).

Patients are typically referred to higher-level centres from district hospitals or primary healthcare services where cardiology specialists are unable to provide effective consultations. Consequently, emergency services, which are already subject to a certain degree of congestion, are further burdened by the influx of unnecessary referrals from external centres, thereby complicating the management of the service and patients.

In this study, we conducted a case analysis of patients admitted to the emergency department with a pre-diagnosis of chest pain, with the objective of providing recommendations for more effective utilisation of emergency departments and more appropriate referrals.

MATERIALS AND METHODS

The study was conducted retrospectively, following the approval of the ethics committee (Decision No: 2023/48, Date: 19.04.2023). A total of 759,290 patients admitted to the Balıkesir University Emergency Department with ICD R07.3 and R07.4 codes between 01/01/2020 and 31/08/2023 were included in the study. A total of 1064 patients who had been referred to the 112 Emergency Command Control Centre (CCC) and the Balıkesir University Faculty of Medicine Emergency Department by ambulance with a prediagnosis of chest pain between 01/01/2020 and 31/08/2023 were included in the study. The case

files of the patients and the 112 ambulance case delivery forms were subjected to analysis. The demographic, clinical and laboratory data of each case were obtained from the electronic database by scanning the relevant ICD codes (R07.4 and R07.3). The data set comprised demographic information (age, gender, etc.), history, physical examination findings, ECG findings, risk factors, referred role group hospital, time interval and day of referral, consultations, treatment methods applied, hospital stay and hospitalisation information. The pre-hospital patient charts and forms of patients referred to the emergency department by 112 were obtained from the hospital patient records and divided into the four categories of A, B, C and D role group hospitals according to the status of the hospital of arrival. The study population comprised patients admitted outside the dates between 01 January 2020 and 31 August 2023, patients younger than 18 years of age, outpatients, and patients who were not referred by ambulance and whose records could not be reached. These individuals were excluded from the study.

The statistical analyses were conducted using the IBM SSPS 25.0 software (SSPS for Windows, version 25.0, SSPS, Chicago, Illinois, USA). Descriptive statistics were expressed as frequency (n), percentage (%), mean ± standard deviation (SD) and median. A chi-square test was employed for the purpose of comparing the groups in question. The suitability of the data for normal distribution was evaluated using the Kolmogorov-Smirnov test. A p-value of less than 0.05 was considered to indicate a statistically significant result.

RESULTS

The study included 1,064 patients. A total of 62.58% (n=666) of the patients were male, while 37.42% (n=398) were female. The mean age of the patients was 63.5±15.11 years. An examination of the referrals from role group hospitals to the CHC revealed that the highest number of referrals, representing 55.92% (n=595) of the total, originated from group C hospitals (Table 1).

Table 1. Demographic characteristics of referrals.

Referral Group Hospital	Female n (%)	Male n (%)	Total n (%)
Group B	9 (0.85%)	15 (1.41%)	**24 (2.26%)**
Group C	223 (20.97%)	372 (34.95%)	**595 (55.92%)**
Group D	166 (15.60%)	279 (26.22%)	**445 (41.82%)**
Total	**398 (37.42%)**	**666 (62.58%)**	**1064 (100%)**

In our study, 49.15% (n=523) of the participants were over 65 years of age when age-related CHC referral rates were analysed. Upon analysis of the referral rates according to hospital groups, it was observed that patients over 65 years of age constituted the largest proportion, with 1.22% (n=13) in group B, 26.78% (n=285) in group C, and 21.15% (n=225) in group D, irrespective of the hospital group (Table 2).

Table 2. Age distribution according to referral hospitals.

Hospital Group	18-45 years old Number of applications n (%)	45-65 years old Number of applications n (%)	Over 65 years old Number of applications n (%)	Total Number n (%)
Group B	1 (0.09%)	10 (0.94%)	13 (1.22%)	24 (2.26%)
Group C	64 (6.02%)	246 (23.12%)	285 (26.78%)	595 (55.92%)
Group D	57 (5.36%)	163 (15.32%)	225 (21.15%)	445(41.82%)
Total	**122 (11.47%)**	**419 (39.38%)**	**523 (49.15%)**	**1064 (100%)**

The distribution of referrals according to the days of the week revealed that the highest number of referrals were made on Fridays (16.54%, n=176), while the lowest number were made on Sundays (10.71%, n=114). Of the total number of referrals, 76.79% (n=817) were made on weekdays, with the highest referral rate observed in group C hospitals, at 42.02% (n=447). The highest number of referrals was observed on Fridays (16.54%, n=176) and Wednesdays (15.41%, n=164) (Table 3).

Table 3. Hospital referral rates according to days.

Day	Group B n (%)	Group C n (%)	Group D n (%)	Total n (%)
Monday	1 (0.09%)	90 (8.46%)	72(6.77%)	163 (15.31%)
Tuesday	3 (0.27%)	97 (9.12%)	56 (5.26%)	156 (14.66%)
Wednesday	**5 (0.45%)**	**80 (7.52%)**	**79 (7.42%)**	**164 (15.41%)**
Thursday	4 (0.36%)	91 (8.55%)	63 (5.92%)	158 (14.85%)
Friday	**5 (0.45%)**	**89 (8.37%)**	**82 (7.70%)**	**176 (16.54%)**
Saturday	3 (0.27%)	82 (7.70%)	48 (4.51%)	133 (12.50%)
Market	3 (0.27%)	66 (6.20%)	45 (4.23%)	114 (10.71%)
Total	**24 (2.26%)**	**595 (55.92%)**	**445 (41.82%)**	**1064 (100%)**

In this study, the most common symptom of all referrals was chest pain with 60.33% (n=642), and 38.53% (n=410) of patients presenting with chest pain were male. The other most common referral symptoms were palpitations 21.05% (n=224), dyspnoea 10.71% (n=114) and back pain 1.60% (n=37), respectively. The least common referral symptom was syncope with 2.26% (n=24) (Table 4).

Table 4. Referral rates depending on symptoms.

Symptom	Female n (%)	Male n (%)	Total n (%)
Chest pain	232 (21.80%)	410 (38.53%)	642 (60.33%)
Palpitations	90 (8.46%)	134 (12.59%)	224 (21.05%)
Dyspnoea	44 (4.14%)	70 (6.58%)	114 (10.72%)
Back pain	17 (1.60%)	20 (1.88%)	37 (3.48%)
Syncope	6 (0.57%)	18 (1.69%)	24 (2.26%)
Other	10 (0.94%)	13 (1.22%)	23 (2.16%)
Total	**399 (37.51%)**	**665 (62.49%)**	**1064 (100%)**

A review of hospitalisations according to the symptoms of the referrals revealed that 66.45% (n=707) of the 1064 referred patients were hospitalised in the relevant wards or intensive care units (ICU). The most common hospitalisation among the hospitalised patients was coronary ICU, accounting for 48.78% (n=345) of cases. Among those hospitalised in coronary ICU, the most common symptom was chest pain, occurring in 61.52% (n=435) of cases. A further analysis of the data revealed that the highest number of hospitalisations was in the coronary ICU, with the highest number of hospitalisations occurring in the patient group over 65 years of age (26.87%, n=190). However, the group of patients admitted to emergency angiography was the 45-65 age group (7.36%, n=52). While 30.35% (n=323) of the patients who were referred were discharged, only 3.20% (n=34) left the hospital as a result of treatment refusal. Furthermore, an examination of the distribution of hospitalisations by month reveals that the highest rates were observed in June (7.99%, n=85), February (7.23%, n=77) and January (7.14%, n=76), respectively (Table 5-6).

Table 5. Distribution of hospitalised patients according to age range and branch of hospitalisation.

Hospitalisation	**18-45 years old, n (%)**	**45-65 years old n (%)**	**Over 65 years old, n (%)**	**Total n (%)**
Coronary Intensive Care	**20 (2.82%)**	**135 (19.09%)**	**190 (26.87%)**	**345 (48.78%)**
Cardiology Service	**22 (3.11%)**	**54 (7.64%)**	**58 (8.20%)**	**134 (18.95%)**
Emergency Angiography	**11 (1.55%)**	**52 (7.36%)**	**48 (6.79%)**	**111 (15.70%)**
Anaesthesia Intensive Care	1 (0.14%)	2 (0.28%)	15 (2.12%)	18 (2.54%)
Gastroenterology Service	1 (0.14%)	5 (0.7%)	2 (0.28%)	8 (1.13%)
Chest Diseases Service	0	2 (0.28%)	4 (0.56%)	6 (0.85%)
Internal Medicine Service	0	1 (0.14%)	4 (0.56%)	5 (0.70%)
Cardiovascular Surgery Intensive Care	0	1 (0.14%)	2 (0.28%)	3 (0.42%)
Transfer to Another Centre	8 (1.13%)	27 (3.81%)	42 (5.94%)	77(10.89%)
Total	**63 (8.91%)**	**279 (39.46%)**	**365 (51.63%)**	**707 (100%)**

Table 6. Hospitalisation-discharge rates of referred patients according to months.

Months	**Hospitalisation n (%)**	**Discharged n (%)**	**Treatment Refusal n (%)**	**Total number n (%)**
January	**76 (7.14%)**	**38 (5.37%)**	**5 (0.47%)**	**119 (11.18%)**
February	**77 (7.23%)**	**30 (2.82%)**	**2 (0.18%)**	**109 (10.24%)**
Mart	54 (5.07%)	32 (3.00%)	2 (0.18%)	88 (8.27%)
April	53 (4.98%)	22 (2.07%)	3 (0.27%)	78 (7.33%)
May	65 (6.12%)	27 (2.54%)	5 (0.47%)	97 (%).12%)
June	**85 (7.99%)**	**38 (5.37%)**	**2 (0.18%)**	**125 (11.75%)**
July	49 (4.60%)	33 (3.09%)	4 (0.36%)	86 (8.08%)
August	50 (4.69%)	20 (1.88%)	2 (0.18%)	72 (6.77%)
September	46 (4.32%)	20 (1.88%)	2 (0.18%)	68 (6.39%)
October	58 (5.45%)	17 (1.60	1 (0.09%)	76 (7.14%)
November	55 (5.17%)	26 (2.45%)	3 (0.27%)	84 (7.89%)
December	39 (3.66%)	20 (1.88%)	1 (0.09%)	60 (5.64%)
Total	**76 (7.14%)**	**38 (5.37%)**	**5 (0.47%)**	**119 (11.18%)**

Upon analysis of referrals by month, it became evident that the majority of referrals originated from Group C hospitals, with the highest referral rates observed in January (11.18%, n=119) and June (11.75%, n=125) (Table 7).

Table 7. Distribution of hospital referrals by months

Months	Group B	Group C	Group D	Total number n (%)
January	**2 (0.18%)**	**75 (7.05%)**	**42 (3.95%)**	**119 (11.2%)**
February	0	66 (6.20%)	43 (4.04%)	109 (10.2%)
Mart	0	51 (4.79%)	37 (3.48%)	88 (8.3%)
April	0	46 (4.32%)	32 (3.00%)	78 (7.3%)
May	5 (0.45%)	52 (4.89%)	40 (3.76%)	97 (9.1%)
June	**4 (0.36%)**	**66 (6.20%)**	**55 (5.17%)**	**125 (11.75%)**
July	2 (0.18%)	48 (4.51%)	36 (3.38%)	86 (8.1%)
August	6 (0.54%)	34 (3.19%)	32 (3.00%)	72 (6.8%)
September	0	33 (3.10%)	35 (3.29%)	68 (6.4%)
October	1 (0.09%)	40 (3.76%)	35 (3.29%)	76 (7.1%)
November	1 (0.09%)	49 (4.60%)	34 (3.20%)	84 (7.9%)
December	3 (0.27%)	35 (3.29%)	24 (2.25%)	62 (5.8%)
Total	**24 (2.26%)**	**595 (55.92%)**	**445 (41.82%)**	**1064 (100%)**

According to the 24-hour application hours of the referred patients. 35.06% (n=373) of the referrals were made between 00:00 and 04:00. When the referrals made were divided into working and non-working hours. 80.92% (n=861) of the referrals were made in the non-working hours (Table 8).

Table 8. Referral rates of hospitals according to admission hours.

Admission Time	Group B	Group C	Group D	Number of patients
Between 00-04	8 (0.75%)	**210 (19.74%)**	**155 (14.57%)**	**373 (35.06%)**
Between 04-08	3 (0.29%)	127 (11.94%)	83 (7.80%)	**213 (20.02%)**
08 to 12	1 (0.09%)	67 (6.30%)	60 (5.63%)	**128 (12.03%)**
12 to 16	3 (0.29%)	86 ((8.08%)	42 (3.95%)	**131 (12.31%)**
16 to 20	8 (0.75%)	71 (6.67%)	70 (6.58%)	**149 (14.00%)**
20 to 24	1 (0.09%)	34 (3.19%)	35 (3.29%)	**70 (6.58%)**
Total	**24 (2.26%)**	**595 (55.92%)**	**445 (41.82%)**	**1064 (100%)**

When the consultation rates of the referred patients were analysed. it was seen that 95.5% (n=1016) of the referred patients were consulted to a department. The departments consulted were 86.88% (n=883) Cardiology. 9.84% (n=100) Anaesthesia and Reanimation. 1.38% (n=14) Chest Diseases. 0.89% (n=9) Gastroenterology. 0.49% (n=5) Cardiovascular Surgery and 0.49% (n=5) General Internal Medicine (Table 9).

The most common concomitant diseases in the CV of the referred patients were coronary artery disease 58.27% (n=620). hypertension 58.08% (n=618). diabetes mellitus 44.74% (n=476). hyperlipidaemia 31.30% (n=333) and chronic renal failure 12.97% (n=138) (Table 10).

Table 9. Consultation rates of referred patients and the branches consulted.

Consultation	**Number** (%)
Positive	1016 (95.5%)
None	48 (4.5%)
Total	**1064 (100%)**
Consultation Branch	**Number of Patients** (%)
Cardiological Diseases	883 (86.88%)
Anaesthesia	100 (9.84%)
Chest Diseases	14 (1.38%)
Gastroenterology	9 (0.89%)
Cardiovascular Surgery	5 (0.49%)
General Internal Medicine	5 (0.49%)
Total	**1016 (100%)**

Table 10. Comorbidities in referred patients.

	With concomitant disease	**No concomitant disease**
Coronary Artery Disease (CAD)	620 (58.27%)	444 (41.73%)
Hypertension (HT)	618 (58.08%)	446 (41.92%)
Diabetes Mellitus (DM)	476 (44.74%)	588 (55.26%)
Hyperlipidaemia	333 (31.30%)	731 (68.70%)
Chronic Kidney Failure (CRF)	138 (12.97%)	926 (87.03%)

DISCUSSION

Chest pain represents one of the most common reasons for admission to the emergency department.(Sağlık et al.. 2024) However. there is currently no accepted. simple and adequate clinical decision-making rule for making the diagnosis and represent 2-6% of AS admissions and 20% of hospitalisations (Fass and Dickman. 2006). The majority of these hospitalisations necessitate risk assessment and measurement of cardiac biomarkers for a potential diagnosis of acute coronary syndrome (ACS) (Sweeney et al.. 2020). It is assumed that all patients presenting with suspected chest pain have a cardiac aetiology. and the majority are conveyed to emergency departments to exclude the possibility of acute coronary syndrome. The result of these admissions is an overcrowded emergency department. an increase in the number of patients transferred by ambulance. and a problematic rise in healthcare costs (Backus et al.. n.d.). Ischemic heart disease. coronary artery disease and ischemic brain disease are less prevalent in provinces with a geographically high elderly population. such as Balıkesir. where our study was conducted. However. failure to identify the underlying cause in patients presenting with chest pain can result in significant morbidity and mortality. Consequently. the management of these patients is of paramount importance. Patients admitted to centres in the B. C and D groups. which were the focus of our study. are referred to our hospital for differential diagnosis and further investigation and treatment.

In accordance with the existing literature. our study revealed that the most common referrals were male gender and patients over 65 years of age (Özen et al.. 2012).

Upon analysing the distribution of referral times in our study. it was found that the majority (80.92%) of referrals were made

outside of regular working hours. with emergency department referrals being more frequent on weekdays. The highest referral rate was observed on Friday. while Sunday exhibited the lowest referral rate. Upon analysis of the referral data according to arrival times. it was observed that the interval between 00:00 and 04:00 exhibited the highest referral rate. at 35.06%. C-grade group hospitals have the highest referral rate of 19.74% within the specified time interval. In contrast to our study. the investigation conducted by Burt et al. revealed that 112 ambulance arrivals occurred between 10:00 and 13:00. with the highest number of transfers taking place on Mondays (Burt et al.. 2006). In the literatere; it was observed that the number of ambulance referrals was higher on Saturdays. with the majority of applications received between 09:00 and 16:00 (Deniz et al.. n.d.). The discrepancy between the results of our study and those of previous research is thought to be due to socioeconomic and geographical differences. Upon analysis of the number and percentage of referrals. significant fluctuations were observed in certain months. The highest referral rates were observed in January (11.2%) and June (11.7%). The elevated referral rate observed in January can be attributed to an increase in respiratory diseases. accidents resulting from cold weather conditions. and other winter illnesses. The observed increase in June. the start of the summer season. may be attributed to the combination of hot weather conditions. increased outdoor activities and a potential rise in accidents.

In the present study. the most common reasons for hospitalisation were chest pain and palpitations. This finding is consistent with the existing literature and demonstrates that these referrals were made in accordance with the intended purpose and necessity. The majority of patients were admitted to the cardiology service or coronary intensive care unit. Furthermore. the fact that 9.62% of the patients were admitted for emergency angiography demonstrates that 24-hour angiography can be performed in our hospital and that invasive interventions for diagnosis and treatment are widely utilised. In a similar vein. found that patients presenting with a prediagnosis of chest pain were mostly diagnosed with ACS. followed by pulmonary diseases and somatisation disorders (Knockaert et al.. 2002).

A review of hospitalisation data reveals that the majority of patients admitted with various symptoms are concentrated in elderly populations. Of note. patients aged 65 and above have the highest rate of hospitalisation. accounting for 51.63% of total admissions (Carubbi et al.. n.d.).

In our study. it was observed that the majority of hospitalisations occurred in the cardiology department. with the highest rate of hospitalisation observed in patients aged 65 years and over (51.63%). These findings align with existing literature. indicating that cardiovascular and other health issues tend to become more prevalent with advancing age (Aygun et al.. n.d.). In a another study. evaluating patients presenting to the emergency department with chest pain. the mean age was 72.3 years (Carubbi et al.. n.d.). The prevalence of cardiovascular disease in the elderly population underscores the necessity for their hospitalisation in either general wards or coronary intensive care units due to the severity of their conditions. It can be observed that a greater proportion of elderly patients are hospitalised in coronary intensive care and cardiology services. Furthermore. it can be posited that the majority of referrals and hospitalisations in this demographic are a result of cardiovascular symptoms that increase with age.

Upon analysis of the hospitalisation data of patients following referral. it was observed that male patients were hospitalised at a higher rate. with a percentage of 64.52%. It has been observed that male patients are hospitalised with greater frequency due to cardiovascular issues. In our study. the majority of patients who were referred were

seen in the cardiology department. the majority were hospitalised by cardiology. and emergency angiography was performed in 16.75% of hospitalisations. However. the study conducted by Ertan et al. revealed that the distribution of patient referrals according to the days of the week was Friday. Sunday and Saturday. respectively (Ertan et al.. 2010). This may be attributed to the fact that the consultant physician in the referring hospital opted to refrain from hospitalising patients at the weekend. which may explain the observed increase in referrals prior to the weekend.
Upon examination of the distribution of referrals according to risk factors. it was observed that patients with coronary artery disease and hypertension were more frequently referred to the emergency department of our hospital. Patients presenting to the emergency department with chest pain. it was observed that the most common comorbidity was coronary artery disease. occurring in 34% of cases (Al-Lamee et al.. n.d.). It is essential to obtain comprehensive information regarding predisposing diseases. family history. lifestyle. and drug use. Patients are frequently unable to provide comprehensive information about their diagnosed diseases and often provide inconsistent responses. Hypertension and diabetes mellitus are associated with an unfavourable clinical prognosis. In light of the findings of our study and those of other studies in the literature. it can be posited that hypertension and diabetes mellitus play a significant role in the aetiology of acute coronary syndrome (ACS) (Özel Coşkun et al.. 2015).

In our study. 95.5% of referrals were requested for consultation by the emergency physician. with 66.52% resulting in hospitalisation. The rate of patients who were discharged from the hospital was 30.55%. while the rate of patients who refused treatment was 3.10%. The months with the highest rates of hospitalisation were June (7.99%). February (7.24%) and January (7.14%). The high rate of hospitalisations among referred patients indicates that the referrals were made in accordance with the relevant clinical indications. Upon analysis of the consultations requested during the diagnosis and treatment phase of the patients. it was observed that the majority of these consultations were made to the cardiology department (86.88%). The rate of anaesthesia consultations was 9.84%. indicating that the patients required intensive care. underlying causes and surgical intervention. These findings underscore the prevalence of cardiovascular issues and the significance of accurate referrals. The analysis of referral processes and outcomes is of critical importance for the improvement of patient care quality and the evaluation of emergency departments' effectiveness.

CONCLUSION

The findings of this study indicate that elderly patients were referred at a high rate across all hospital groups. This situation demonstrates that the elderly population requires greater access to health services. with 112 ambulance services being the primary means of transportation for elderly patients. It was demonstrated that the specific requirements of the elderly population must be taken into account in the planning of health services. Furthermore. it is essential to develop targeted strategies to enhance the accessibility and utilisation of health services among the elderly population.

It is hypothesised that the referral rate of patients is elevated due to the dearth of physicians and personnel in the district state hospitals of Balıkesir province. where the study was conducted. It is anticipated that patients are not inclined to be followed up. particularly outside of normal working hours. Furthermore. referrals are frequently initiated without an appropriate indication. based on the patient's complaint. and sometimes even before examination results are available. This situation results in an increased workload for the Balıkesir University emergency department. as is the case for the majority of hospitals. The high referral rate outside of

working hours underscores the necessity for emergency departments to operate at full capacity during these hours. Fluctuations in patient admissions during the day and variability in the number of referrals necessitate flexible and dynamic staff planning.

In centres where the 112 command control centre is contacted and a referral request is made for various cardiac complaints or for the need for a specialist. the employment of emergency medicine specialists in the referral units of the 112 command control centres will prevent unnecessary referrals and enable the 112 service to reach more urgent cases more easily. This will also have a positive impact on the national economy.

In conclusion. it is essential to enhance the capacity of health services. to be prepared for emergencies and to implement the necessary measures during periods of high referral rates. These findings are of critical importance in terms of improving the quality of healthcare services and evaluating the effectiveness of emergency services.

Author Contributions
Planing and design: RK. MF; Material, methods and data collection: MF. RK; Data analysis and comments: RK. SS; Writing and corrections: BÇ. MF.

Conflict of Interest
The author declare no potential conflicts of interest with respect to the research. authorship and/or publication of this article.

Funding
There is no funding.

Ethics approval and consent to participate: This Project was approved by the Ethics Committee in Balıkesir University Hospital on April 19, 2023 (protocol number 2023/48). The study was conducted in line with the principles of the "Helsinki Declaration."

REFERENCES

Al-Lamee RK, N. A. (2019). Percutaneous coronary intervention for stable coronary artery disease. *Heart. 105(1), 11-19.*

Aygun E, A. S. (2020). Aetiological evaluation of chest pain in childhood and adolescence. *Cardiology in the Young, 30(5), 1-7.*

Backusa B.E., T. R. (2020). The new era of chest pain evaluation in the Netherlands. *European Journal of Emergency Medicine, 27(4), 243–244.*

Beatrijs Bn Hoorweg, R. T. (2017). Frequency of chest pain in primary care, diagnostic tests performed and final diagnoses. *Heart, 103(21), 1727-1732.*

Bonow R, M. D. (2018). Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine, Approach to the Patient with Chest Pain. *Eleventh Edition ed. Elsevier.*

Burt C.W., M. L. (2006). Analysis of Ambulance Transports and Diversions Among US Emergency Departments. *Annals of Emergency Medicine, 47(4), 317-326.*

Bhatt D. L. (2023). Cardiovascular Intervention E-Book (2d Edition): A Companion to Braunwald's Heart Disease.

Carubbi, C. M. (2019). Combination of Platelet expression of PKCepsilon and cardiac troponin-I for early diagnosis of chest pain patients in the emergency department. *Scientific Reports, 9(1), 2125.*

Coşkun S. Ö., D. V. (2015). Acil Servise Göğüs Ağrısı İle Başvuran Hastaların Akut Koroner Sendrom Oranlarının Değerlendirilmesi. *İzmir Eğitim ve Araştırma Hastanesi Tıp Dergisi, 19(2), 84-94.*

Deniz A.T., D. A. (2020). Analysıs Of Patıents Admıtted To A Unıversıty Hospıtal Emergency Room Wıth 112. *Medical Journal of Süleyman Demirel University, 27(2), 192-198*

Ertan, C. A. (2010). Bir üniversite hastanesi acil servisine yapılan sevklerin incelenmesi. *Türkiye Acil Tıp Dergisi, 10(2), 65-70.*

Fass R, D. R. (2006). Non-cardiac chest pain: an update. *Neurogastroenterol Motil, 18(6), 408-17.*

Id. J. S.. Lu. J.. Goudie. A.. Bennamoun. M.. Sprivulis. P.. Sanfillipo. F.. and Dwivediid. G. (2021). Applications of machine learning to undifferentiated chest pain in the emergency department: A systematic review. *Journals.Plos. 16(8)*

Jonathon Stewart, J. L. (2021). Applications of machine learning to undifferentiated chest pain in the emergency department: A systematic review. *PLoS One, 16, 8.*

Knockaert, D. B. (2002). Chest pain in the emergency department: the broad spectrum of causes, *European Journal of Emergency Medicine, 9(1), 25-30.*

Kontos M.C., J. R. (2000). Evulation of the emergency departman chest pain patient. *The American Journal of Cardiology, 85(5), 32-39.*

McCaig LF, B. C. (2004). National Hospital Ambulatory Medical Care Survey: 2002 emergency department summary. *Adv Data, 340, 1-34.*

Özen, M. S. (2012). Acil Servise Başvuran Akut Koroner Sendrom Tanılı Hastaların Sosyodemografık ve Klinik Özellikleri. *Turkish Journal of Emergency Medicine, 3.*

Rudi Bruyninckx, A. V. (2009). GPs' reasons for referral of patients with chest pain: a qualitative study. *BMC Fam Pract., 10, 55.*

Sweeney M., S. S. (2020). The impact of an acute chest pain pathway on the investigation and management of cardiac chest pain. *Future healthcare Journals, 10(1), 53-59.*

Tim Alex Lindskou, P. J. (2023). More emergency patients presenting with chest pain. *PLoS One. 18(3).*

Wolinsky, D. (2017). Imaging for chest pain in the emergency room: Finding the right gate not the right gatekeeper. *Journal of Nuclear Cardiology, 24, 2012-4.*

Çocuk Obezitesi ve Obezite Cerrahisi: Tanımı, Nedenleri, Tedavisi

Childhood Obesity and Bariatric Surgery: Definition, Causes, Treatment and Management

Ahmet Hikmet ŞAHİN

Balıkesir Üniversitesi Tıp Fakültesi Çocuk Cerrahisi Anabilim Dalı, Balıkesir, Türkiye

Özet: Çocuk obezitesi, modern sağlık sistemlerinin karşılaştığı en büyük zorluklardan biri haline gelmiştir. Obezite, çocuklarda ve ergenlerde önemli sağlık sorunlarına yol açabilen, kronik bir hastalıktır. Bu durum, sadece fiziksel sağlık üzerinde değil, aynı zamanda psikososyal gelişim üzerinde de derin etkiler yaratmaktadır. Çocuklarda obezite yönetimi, diyet ve yaşam tarzı değişikliklerinden cerrahi müdahalelere kadar geniş bir yelpazede tedavi seçeneklerini içerir. Bu derleme, çocuk obezitesinin nedenleri, sonuçları, tedavi yöntemleri ve özellikle obezite cerrahisinin rolü üzerinde duracaktır.

Anahtar Kelimeler: Çocukluk Çağı Obezitesi; Ergenlik Dönemi Obezitesi; Bariatrik Cerrahi

Abstract: Childhood obesity has become one of the greatest challenges facing modern healthcare systems. Obesity is a chronic disease that can cause significant health problems in children and adolescents. This condition has profound effects not only on physical health but also on psychosocial development. Management of obesity in children includes a wide range of treatment options, from dietary and lifestyle changes to surgical interventions. This review will focus on the causes, consequences, treatment methods and, in particular, the role of bariatric surgery.

Keywords: Child Obesity; Adolescent Obesity; Bariatric Surgery

Sorumlu Yazar: Ahmet Hikmet Şahin **e-mail:** drhikmet.sahin@gmail.com
Geliş Tarihi: 14 Ekim 2024 **Kabul Tarihi:** 22 Aralık 2024 **DOI:** 10.33716/bmedj.1566673

ÇOCUK OBEZITESI: TANIM VE EPIDEMIYOLOJI

Çocuk obezitesi, vücut kitle indeksinin (VKİ) yaş ve cinsiyete göre belirlenen yüzde 95'in üzerinde olması durumudur. BMI, bir kişinin boyuna göre ağırlığını değerlendiren bir ölçümdür ve çocuklarda yaş ve cinsiyet göz önünde bulundurularak hesaplanır. Çocuk obezitesi, dünya genelinde endişe verici bir hızla artmaktadır. Dünya Sağlık Örgütü'ne (WHO) göre, 2016 yılında dünya genelinde 41 milyon çocuk aşırı kiloludur (Lister et al., 2023).

Obezite prevalansı, gelişmiş ve gelişmekte olan ülkelerde hızla artmaktadır. Özellikle, kentsel alanlarda yaşayan çocuklarda obezite oranları daha yüksektir. Amerika Birleşik Devletleri'nde, Hastalık Kontrol ve Önleme Merkezleri (CDC) verilerine göre, 2-19 yaş arası çocukların %18,5'i obezdir.

Türkiye'de ise Sağlık Bakanlığı'nın verilerine göre, çocukluk çağında obezite prevalansı %10'un üzerindedir.

Çocuk Obezitesinin Nedenleri

Çocuk obezitesi, genetik, çevresel ve davranışsal faktörlerin karmaşık etkileşimi sonucunda ortaya çıkar. Bu faktörler arasında yetersiz fiziksel aktivite, sağlıksız beslenme alışkanlıkları, genetik yatkınlık ve sosyal ekonomik koşullar bulunmaktadır.

Genetik yatkınlık, obezitenin gelişiminde önemli bir rol oynar. Ebeveynleri obez olan çocukların obez olma olasılığı daha yüksektir. Genetik faktörler, enerji dengesini, metabolik hızı ve yağ depolama eğilimini etkileyebilir. Ayrıca, bazı genetik sendromlar (Prader-Willi sendromu vb) çocuklarda obeziteye yol açabilir (Jebeile et al., 2022; Benaiges et al., 2015).

Çevresel ve Davranışsal Faktörlere bakıldığında bunlar da üç grupta incelenebilir. İlki beslenme alışkanlıklarıdır. Yüksek kalorili, düşük besin değerine sahip gıdaların tüketimi, çocuklarda kilo alımına katkıda bulunurken; fast food, şekerli içecekler ve atıştırmalık gibi gıdalar, çocukların enerji dengesini bozmaktadır. İkincisi fiziksel aktivite eksikliği olup teknolojik cihazların artan kullanımı ve güvenli oyun alanlarının eksikliği ve bunların çocukların fiziksel aktivite düzeylerini azaltmasını ifade eder. Sedanter yaşam tarzı, enerji tüketimini azaltarak kilo alımına yol açmaktadır. Son grup ise sosyal ve ekonomik faktörlerdir. Düşük sosyoekonomik statü, sağlıklı gıdalara erişim zorluğu ve bilinçsiz beslenme alışkanlıkları ile ilişkilidir. Ayrıca, ebeveynlerin eğitim düzeyi de çocukların beslenme ve aktivite alışkanlıklarını etkiler.

Obezite, psikososyal faktörlerden de etkilenir. Stres, depresyon ve anksiyete gibi durumlar, yeme davranışlarını olumsuz yönde etkileyebilir. Ayrıca, obez çocuklar sosyal dışlanma ve akran zorbalığı ile karşılaşabilir, bu da psikolojik sorunları artırabilir.

Çocuk Obezitesinin Sonuçları

Çocukluk döneminde obezite, hem kısa hem de uzun vadede ciddi sağlık sorunlarına yol açabilir. Bu sorunlar, fiziksel, psikolojik ve sosyal alanlarda kendini gösterir (Thomas-Eapen, 2021).

Fiziksel Sağlık Sorunları

1. Metabolik Bozukluklar: Çocukluk dönemi obezitesi, tip 2 diyabet, hipertansiyon ve dislipidemi gibi metabolik bozukluklarla ilişkilidir. İnsülin direnci, bu çocuklarda yaygın olarak görülür.

2. Kardiyovasküler Hastalıklar: Obez çocuklar, ilerleyen yaşlarda kardiyovasküler hastalıklar için yüksek risk altındadır. Erken yaşta başlayan arteriyel sertleşme, hipertansiyon ve dislipidemi bu riskleri artırır.

3. Solunum Problemleri: Obezite, uyku apnesi ve astım gibi solunum problemlerine yol açabilir. Özellikle uyku apnesi, çocuklarda ciddi uyku bozukluklarına ve gün içi yorgunluğa neden olabilir.

4. Ortopedik Sorunlar: Aşırı kilo, çocukların kemik ve eklem yapısına ekstra yük bindirir. Bu durum, düztabanlık, kalça displazisi ve osteoartrit gibi ortopedik sorunlara yol açabilir.

Psikolojik ve Sosyal Sonuçlar

Obez çocuklar, sosyal dışlanma, akran zorbalığı ve düşük benlik saygısı gibi psikolojik sorunlarla karşılaşabilir. Bu durum, depresyon, anksiyete ve yeme bozukluklarına yol açabilir. Ayrıca, obez çocuklar okulda performans düşüklüğü yaşayabilir ve sosyal becerilerinde gerileme görülebilir (Stabouli et al., 2021).

ÇOCUK OBEZİTESİNİN TEDAVİSİ VE YÖNETİMİ

Çocuk obezitesinin tedavisi ve yönetimi, multidisipliner bir yaklaşım gerektirir. Tedavi seçenekleri, yaşam tarzı değişikliklerinden cerrahi müdahalelere kadar geniş bir yelpazede yer alır.

Yaşam Tarzı Değişiklikleri

1. Diyet ve Beslenme Danışmanlığı: Sağlıklı beslenme alışkanlıklarının teşvik edilmesi, çocuk obezitesinin yönetiminde temel bir adımdır. Diyetisyenler, çocuklar ve aileleri için dengeli ve besleyici diyet planları oluşturabilir. Bu planlar, meyve, sebze, tam tahıllar ve yağsız protein kaynaklarını içermelidir.

2. Fiziksel Aktivite: Çocukların düzenli fiziksel aktivite yapmaları teşvik edilmelidir. Okul sonrası spor etkinlikleri, oyun parkları ve aile ile yapılan aktiviteler bu konuda yardımcı olabilir. Dünya Sağlık Örgütü, çocukların günde en az 60 dakika orta ila yoğun fiziksel aktivite yapmalarını önermektedir (Styne et al., 2017).

3. Davranışsal Terapi: Obez çocuklarda yeme ve aktivite alışkanlıklarının değiştirilmesi için davranışsal terapi önemli bir rol oynar. Psikologlar ve davranış terapistleri, çocuklara ve ailelerine sağlıklı yaşam alışkanlıkları kazandırmak için stratejiler sunar (Leung et al., 2024).

Farmakolojik Tedavi

Farmakolojik tedavi, çocuklarda obezitenin yönetiminde sınırlı bir rol oynar ve genellikle diğer tedavi yöntemleri etkisiz kaldığında düşünülür. Orlistat ve metformin gibi ilaçlar, bazı durumlarda kullanılabilir, ancak yan etkileri ve uzun vadeli güvenliği dikkate alınmalıdır (Morales Camacho et al., 2019).

Cerrahi Tedavi

Obezite cerrahisi, çocuk ve ergenlerde obezitenin tedavisinde son çare olarak düşünülür. Bu yöntem, diğer tedavi seçeneklerinin başarısız olduğu ve obezitenin ciddi sağlık sorunlarına yol açtığı durumlarda uygulanır. Bariatrik cerrahi, kilo kaybını teşvik etmek ve obeziteye bağlı sağlık sorunlarını azaltmak için kullanılır (Nicolucci and Maffeis, 2022).

Çocuklarda Obezite Cerrahisi

Çocuklarda obezite cerrahisi, genellikle morbid obezite olarak tanımlanan aşırı kilo durumunda uygulanır. Cerrahi müdahale, çocukların yaşam kalitesini iyileştirmek ve obeziteye bağlı sağlık sorunlarını azaltmak için etkili bir yöntem olabilir. Ancak, cerrahi müdahale öncesinde ve sonrasında dikkatli bir değerlendirme ve uzun vadeli takip gereklidir (Herouvi et al., 2023).

Endikasyonlar ve Kontrendikasyonlar

Çocuklarda obezite cerrahisi için uygun

adaylar belirli kriterleri karşılamalıdır. Genellikle, BMI'nin yüzde 95'in üzerinde olması ve obeziteye bağlı ciddi sağlık sorunlarının varlığı cerrahi için endikasyon oluşturur. Ayrıca, cerrahi adaylarının fiziksel ve psikolojik olarak ameliyata uygun olmaları gerekmektedir. Kontrendikasyonlar arasında ciddi psikiyatrik bozukluklar, tedavi edilemeyen yeme bozuklukları ve cerrahinin risklerini artıran diğer sağlık sorunları yer alır.

Cerrahi Yöntemler

Çocuklarda kullanılan bariatrik cerrahi yöntemleri, erişkinlerde kullanılan yöntemlere benzer. En yaygın yöntemler arasında mide bandı (gastrik bant), tüp mide (sleeve gastrektomi) ve gastrik bypass (Roux-en-Y gastrik bypass) bulunmaktadır.

1. Mide Bandı: Ayarlanabilir mide bandı, midenin üst kısmına yerleştirilen silikon bir banttır. Bu bant, mideyi iki bölüme ayırarak gıda alımını kısıtlar ve tokluk hissini artırır. Ancak, uzun vadeli başarı oranları ve komplikasyon riskleri nedeniyle bu yöntem çocuklarda daha az tercih edilmektedir.

2. Tüp Mide: Tüp mide ameliyatı, midenin büyük bir kısmının çıkarılarak tüp şeklinde daraltılması işlemidir. Bu yöntem, hem gıda alımını kısıtlar hem de hormon seviyelerini değiştirerek iştahı azaltır. Tüp mide, çocuklarda sık kullanılan ve başarılı sonuçlar veren bir yöntemdir.

3. Gastrik Bypass: Roux-en-Y gastrik bypass, midenin küçük bir kısmının bypass edilerek ince bağırsakla bağlanması işlemidir. Bu yöntem, hem gıda alımını kısıtlar hem de besin emilimini azaltır. Gastrik bypass, ciddi obezite ve metabolik bozuklukları olan çocuklarda etkili bir yöntem olabilir.

Cerrahi Öncesi ve Sonrası Değerlendirme

Cerrahi öncesi değerlendirme, adayların fiziksel ve psikolojik olarak ameliyata uygunluğunu belirlemek için önemlidir. Bu süreçte, detaylı tıbbi geçmiş, fizik muayene ve laboratuvar testleri yapılır. Ayrıca, psikolojik değerlendirme ile çocukların ameliyata hazırlığı ve postoperatif döneme uyumu değerlendirilir.

Cerrahi sonrası takip, başarılı bir sonuç için kritik öneme sahiptir. Beslenme danışmanlığı, fiziksel aktivite programları ve düzenli sağlık kontrolleri, çocukların sağlıklı kilo kaybını sürdürmelerine yardımcı olur. Ayrıca, psikolojik destek, çocukların ve ailelerin cerrahi sonrası dönemde yaşadıkları zorluklarla başa çıkmalarına yardımcı olabilir (Canoy and Yang, 2015).

SONUÇ VE ÖNERİLER

Çocuk obezitesi, dünya genelinde giderek artan bir sağlık sorunu olarak karşımıza çıkmaktadır. Genetik, çevresel ve davranışsal faktörlerin etkisi altında gelişen obezite, çocukların fiziksel ve psikolojik sağlığını ciddi şekilde etkileyebilir. Çocuk obezitesinin yönetimi, multidisipliner bir yaklaşım gerektirir ve diyet, fiziksel aktivite, davranışsal terapi ve gerektiğinde farmakolojik ve cerrahi tedavileri içerebilir.

Obezite cerrahisi, çocuklarda morbid obezitenin tedavisinde etkili bir yöntem olabilir. Ancak, cerrahi müdahale öncesinde ve sonrasında dikkatli bir değerlendirme ve uzun vadeli takip gereklidir. Cerrahi adaylarının seçimi, cerrahi yöntemlerin belirlenmesi ve postoperatif bakım, başarılı sonuçlar elde etmek için önemlidir.

Sonuç olarak, çocuk obezitesinin önlenmesi ve yönetimi için erken müdahale, aile eğitimi ve toplum sağlığı programları kritik öneme sahiptir. Gelecekteki araştırmalar, obezite tedavisinde yeni ve daha etkili yöntemlerin geliştirilmesine katkıda bulunabilir. Ayrıca, politikalar ve toplum temelli programlar, çocuk obezitesinin prevalansını azaltmak için önemli bir rol oynayabilir.

KAYNAKLAR

Benaiges, D., Goday, A., Pedro-Botet, J., Más, A., Chillarón, J. J., and Flores-Le Roux, J. A. (2015). Bariatric surgery: To whom and when? *Minerva Endocrinologica, 40*(2), 119–128.

Canoy, D., and Yang, T. O. (2015). Obesity in children: Bariatric surgery. *BMJ Clinical Evidence, 2015*, 0325.

Herouvi, D., Soldatou, A., Paschou, S. A., Kalpia, C., Karanasios, S., and Karavanaki, K. (2023). Bariatric surgery in the management of childhood and adolescence obesity. *Endocrine, 79*(3), 411–419. https://doi.org/10.1007/s12020-022-03210-9

Jebeile, H., Kelly, A. S., O'Malley, G., and Baur, L. A. (2022). Obesity in children and adolescents: Epidemiology, causes, assessment, and management. *The Lancet Diabetes and Endocrinology, 10*(5), 351–365. https://doi.org/10.1016/S2213-8587(22)00047-X

Leung, A. K. C., Wong, A. H. C., and Hon, K. L. (2024). Childhood obesity: An updated review. *Current Pediatric Reviews, 20*(1), 2–26. https://doi.org/10.2174/1573396318666220801093225

Lister, N. B., Baur, L. A., Felix, J. F., Hill, A. J., Marcus, C., Reinehr, T., Summerbell, C., and Wabitsch, M. (2023). Child and adolescent obesity. *Nature Reviews Disease Primers, 9*(1), 24. https://doi.org/10.1038/s41572-023-00435-4

Morales Camacho, W. J., Molina Díaz, J. M., Plata Ortiz, S., Plata Ortiz, J. E., Morales Camacho, M. A., and Calderón, B. P. (2019). Childhood obesity: Aetiology, comorbidities, and treatment. *Diabetes/Metabolism Research and Reviews, 35*(8), e3203. https://doi.org/10.1002/dmrr.3203

Nicolucci, A., and Maffeis, C. (2022). The adolescent with obesity: What perspectives for treatment? *Italian Journal of Pediatrics, 48*(1), 9. https://doi.org/10.1186/s13052-022-01205-w

Stabouli, S., Erdine, S., Suurorg, L., Jankauskienė, A., and Lurbe, E. (2021). Obesity and eating disorders in children and adolescents: The bidirectional link. *Nutrients, 13*(12), 4321. https://doi.org/10.3390/nu13124321

Styne, D. M., Arslanian, S. A., Connor, E. L., Farooqi, I. S., Murad, M. H., Silverstein, J. H., and Yanovski, J. A. (2017). Pediatric obesity—Assessment, treatment, and prevention: An Endocrine Society clinical practice guideline. *The Journal of Clinical Endocrinology and Metabolism, 102*(3), 709–757. https://doi.org/10.1210/jc.2016-2573

Thomas-Eapen, N. (2021). Childhood obesity. *Primary Care: Clinics in Office Practice, 48*(3), 505–515. https://doi.org/10.1016/j.pop.2021.04.002

Miliyer Paternli Akciğer Adenokarsinomunun Tirozin Kinaz İnhibitörüne Dramatik Yanıtı

Dramatic Response of Miliary Pattern Lung Adenocarcinoma to Tyrosine Kinase Inhibitor

Coşkun DOĞAN [1]

[1]İstanbul Medeniyet Üniversitesi Tıp Fakültesi, Göğüs Hastalıkları Anabilim Dalı, İstanbul, Türkiye

Akciğerin adenokarsinomlarının çok farklı klinik, radyolojik, moleküler ve patolojik spektrumları mevcuttur. Dünya sağlık örgütünün en son 2021 sınıflamasında alt başlıkları ile birlikte toplam 12 çeşit akciğer adenokarsinomu vardır. Miliyer görünüm her iki akciğerde, 2 milimetre ve daha küçük boyutta, uniform tarzda tutulum yapan pulmoner opasitelere verilen addır. Sıklıkla tüberkülozda görülür. Akciğerin primer adenokarsinomlarında miliyer patern sıradışı bir görünümdür. Özellikle sigara öyküsü olmayan, kadın cinsiyet, primer akciğer adenokarsinom histopatolojisinde, EGFR gen mutasyonuna sahip, miliyer görünümlü olguların farklı bir adenokarsinom genotipi olabileceği düşünülmektedir. Bu yazıda yukardaki özellikleri taşıyan, miliyer görünüm nedeni ile tüberküloz ile ayırıcı tanıya giren bir olgu güncel literatür eşliğinde sunulmuştur.

Anahtar Kelimeler: Akciğer Adenokarsinomu; Miliyer Patern; Tirozin Kinaz

Adenocarcinomas of the lung have very different clinical, radiological, molecular and pathological spectra. In the latest 2021 classification of the World Health Organization, there are a total of 12 types of lung adenocarcinomas with their subheadings. Miliary appearance is the name given to pulmonary opacities that are 2 millimeters or smaller in size and have uniform involvement in both lungs. It is frequently seen in tuberculosis. Miliary pattern is an unusual appearance in primary adenocarcinomas of the lung. It is thought that miliary-looking cases with EGRF gene mutation, especially in the histopathology of female gender, primary lung adenocarcinoma without a history of smoking, may be a different adenocarcinoma genotype. In this article, a case with the above-mentioned features and included in the differential diagnosis with tuberculosis due to miliary appearance is presented with the current literature.

Keywords: Lung Adenocarcinoma; Miliary Pattern; Tyrosine Kinase

Sorumlu Yazar: Coşkun Doğan **e-posta:** coskund24@hotmail.com
Geliş Tarihi: 5 Eylül 2024 **Kabul Tarihi:** 31 Aralık 2024 **DOI:** 10.33716/bmedj.1544057

GİRİŞ

Akciğerlerde çapı 2 milimetre (mm) ve daha küçük olan, genellikle hepsi aynı boyutta uniform olan, her iki akciğerde yaygın şekilde görülen pulmoner opasitelere miliyer görünüm adı verilir ve en sık tüberkülozda görülür (Sharma et al., 2016). Primer akciğer adenokarsinomunda çok farklı klinik, radyolojik, moleküler ve patolojik spektrum mevcuttur. Primer akciğer adenokanserleri diğer akciğer kanserlerinden ayıran en önemli farkları görece sık görülmesi, onkolojik tedavisi, histopatolojisi, moleküler biyolojisi ve radyolojisinde zaman zaman farklılıklar görülmesidir. Bu nedenlerle yeni araştırmalar akciğer adenokarsinomları üzerinde yoğunlaşmaktadır. Dünya Sağlık Örgütü (WHO) 2015 yılında akciğer adenokarsinomlarının histopatolojik sınıflamasında çok önemli değişiklikler yapmış, adenokarsinomlara yeni alt başlıklar eklenmiştir. En son 2021 yılında WHO tarafından yapılan yeni histopatolojik sınıflamada da bu değişiklikler önemini korumuş, alt başlıkları ile birlikte toplam 12 çeşit akciğer adenokarsinomu yeni sınıflamada yerini almıştır (Tablo 1) (Nicholson et al., 2022).

Primer akciğer adenokarsinomunun ilk radyolojik bulgusu olarak miliyer patern atipik ve nadir bir bulgudur. Kesin olarak nedeni açıklanamasa da miliyer patern, akciğer adenokarsinomu ve epidermal growth factor receptor (EGFR) pozitifliği arasında bir ilişki olabileceği varsayılmaktadır (Hoffman et al., 2019; Sebastian et al., 2009).

Bu olgu sunumunda radyolojik olarak miliyer patern tespit edilen, daha sonraki tetkikler ile EGFR pozitif akciğer adenokarsinomu tanısı alan, başlanan tirozin kinaz inhibitörü tedavisine çok erken ve dramatik şekilde iyi yanıt veren genç bir kadın vaka paylaşılmıştır.

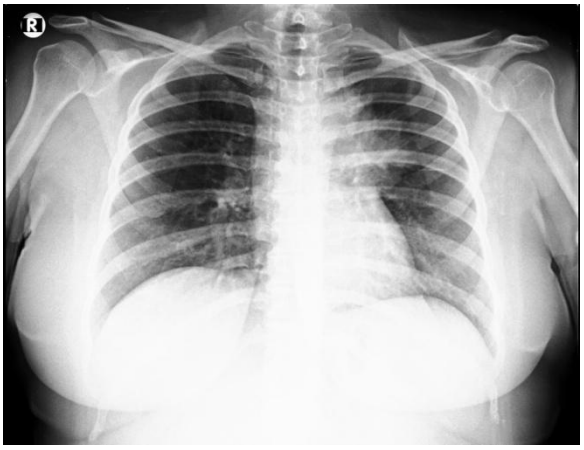
Tablo 1: Akciğer Adenokarsinomları Sınıflandırılması (WHO*-2021)

Akciğer Adenokarsinomları
Minimal invaziv adenokarsinom • Minimal invaziv adenokarsinom, musinöz olmayan • Minimal invaziv adenokarsinom, musinöz
İnvaziv nonmusinöz adenokarsinom • Lepidik adenokarsinom • Asiner adenokarsinom • Papiller adenokarsinom • Mikropapiller adenokarsinom • Solit adenokarsinom
İnvaziv musinöz adenokarsinom • Mixt invaziv musinöz ve non-musinöz adenokarsinom
Kolloid adenokarsinom
Fetal adenokarsinom
Adenokarsinom, enterik tip
Adenokarsinom, NOS

*** WHO: Dünya Sağlık Örgütü.**

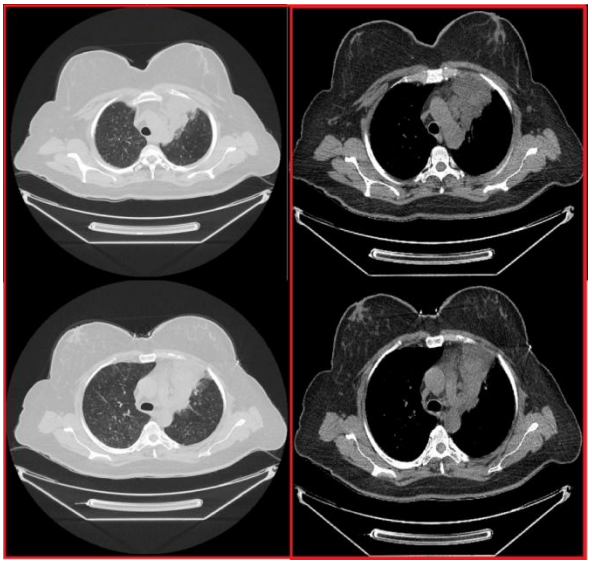
OLGU

43 yaşında kadın hasta öksürük, bol miktarda beyaz renkli balgam ve nefes darlığı yakınması ile başvurdu. Öz geçmişinde diyabetes mellitus (DM) dışında ek hastalığı yoktu. Soy geçmişinde teyzesi ve annesinin teyzesinde akciğer kanseri öyküsü vardı. Sigara öyküsü yoktu. Yapılan solunum sistemi fizik muayenesinde (FM) akciğerlerde bilateral orta alt alanlarda ralleri olduğu görüldü. Bakılan parmak ucu oksijen satürasyonu oda havasında %96 olan olgunun çekilen postero-anterior akciğer grafisinde (AG) sol üst zonda non homojen dansite artışı görüldü (Resim 1).



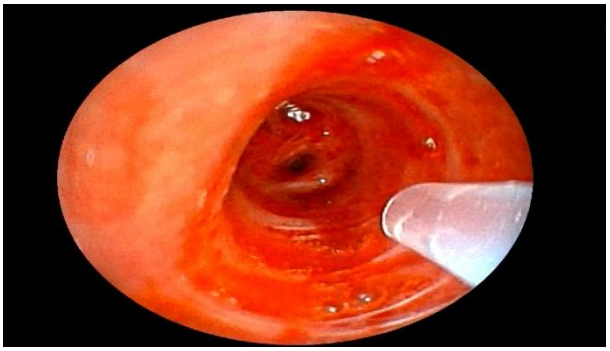
Resim 1: Olgunun çekilen akciğer grafisinde sol üst zonda non homojen opasite artışı.

Çekilen toraks bilgisayarlı tomografide (BT) sol üst lobda kitle lezyon ve bilateral akciğerlerde mikronodüller görüldü (Resim 2).



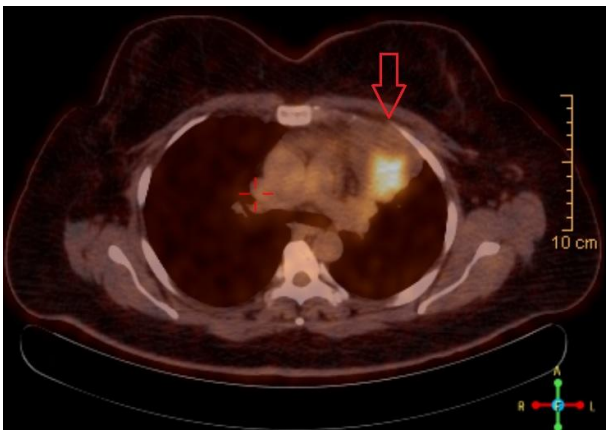
Resim 2: Toraks BT'de sol üst lobda yumuşak doku dansitesinde lezyon ve bilateral akciğerlerde mikronodüller.

Laboratuvar değerleri: lökosit (WBC) 9800 /µl, Sedimentasyon 48 mm/saat, CRP 104 mg/dl, AST 15 U/L, ALT 14 U/L, üre 33 mg/dl, kreatinin 0.92 mg/dl saptandı. Başlanan geniş spektrumlu antibiyoterapiye klinik olarak yanıt vermeyen olgunun gönderilen 3 balgam ARB incelemesinin negatif gelmesi üzerine fiberoptik bronkoskopi (FOB) yapıldı (Resim 3).



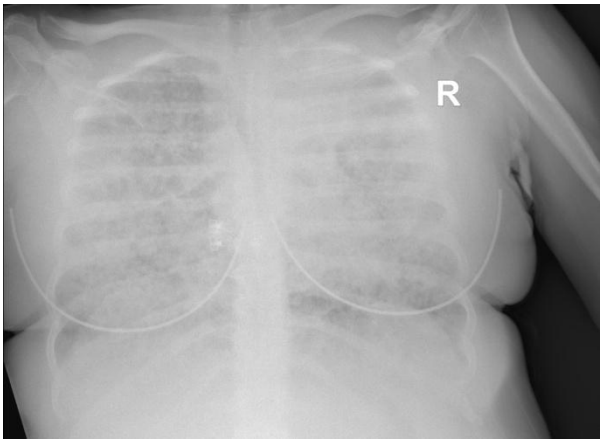
Resim 3: Yapılan fiberoptik bronkoskopide; Sol üst lob girişi ödemli daralmış görünümde ve submukozal tümör infiltrasyon şüphesi izleniyor.

Yapılan FOB'da sol üst lob içerisinde submukozal tümör infiltrasyonu şüphesi olan alandan yapılan forseps biyopsi ve fırça biyopsi sonuçları ile akciğer adenokarsinomu tanısı alan hastaya evreleme amaçlı pozitron emisyon tomografi (PET)/BT çekildi (Resim 4).



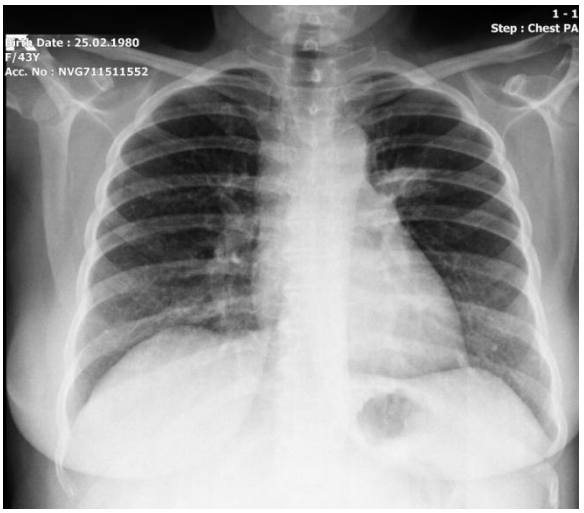
Resim 4: Sol akciğer üst lobda 3x3 cm boyutlarında (SUVMax: 6,6) kitle lezyon, her iki akciğerde yaygın mikronodüller görünüm (SUVMax: 3,3).

Olguya Tıbbi Onkoloji kliniği tarafından pemetrekset ve karboplatin kombine kemoterapi (KT) başlandı. İlk kür KT sonrası klinik ve radyolojik progresyon gözlenen olgunun kontrol akciğer grafisinde ciddi derece progresyon gözlendi (Resim 5).



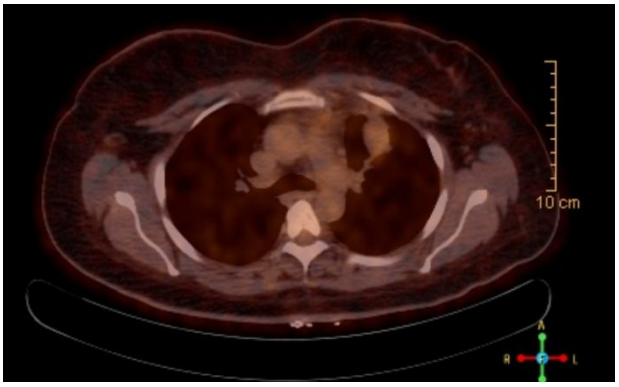
Resim 5: İlk kür KT (pemetrekset+karboplatin) sonrası belirgin radyolojik progresyon.

Olgunun 8-10 Litre/dakika ile oksijen satürasyonları %90-91 arasında seyretti. Moleküler patolojik incelemeler sonucunda EGFR pozitifliği saptanan olguya tirozin kinaz inhibitörü (TKİ- Erlotinib HCL) başlandı. Başlanan TKİ tedavisinin 2. ayında olguda ciddi klinik radyolojik düzelme gözlendi, oksijen satürasyonları oda havasında %96-97 arasında seyretti, çekilen 2. ay kontrol akciğer grafisi belirgin regrese olarak görüldü (Resim 6).



Resim 6: Tirozin Kinaz tedavisinin 2. ayında olgunun akciğer grafisinde parankimal infiltrasyonlarda belirgin regresyon.

Olgunun tedavin 6. ayında çekilen PET-BT'si de benzer olarak sağ üst lob primer lezyon ve parankimal nodüler lezyonlarda belirgin metabolik regresyon şeklinde raporlandı (Resim 7).



Resim 7: Kontrol PET/CT sol üst lob 20x26 cm boyutlarında (SUVMax:2.5) boyutsal ve metabolik olarak regrese lezyon, eski radyolojik görüntülere kıyasla belirgin regrese görünümde parankimal nodüller.

TARTIŞMA

Bundan 30 yıl önce Umeki (1993) 630 akciğer kanseri arasında 4'ü (%80) kadın cinsiyette olan 5 primer akciğer adenokarsinomlu olguda miliyer patern saptamış, akciğerlerde büyüklükleri birbirine yakın, çok sayıda uniform görünümde yayılım tarzının ön planda hematojen yayılım (pulmoner arter yolu ile intraparankimal metastaz) ile oluşabileceği üzerinde durmuştur. İlginç olarak bu seride olguların hepsinde kemik metastazı da olduğu için bu çalışmada adenokarsinomun miliyer patern şeklinde görülmesinin kemik metastazı ile de bir ilişkisi olabileceği bildirilmiştir (Umeki, 1993). Bir primer akciğer adenokarsinomunun bu şekilde yayılım paterni göstermesi araştırmacılara günümüzde de ilginç gelmekte hatta bu özel durumu bazı araştırmacılar "miliyer intrapulmoner karsinomatozis" (MIPC) olarak adlandırmaktadırlar (Wu et al., 2013). Yakın zamanda Kim ve arkadaşlarının (2015) yaptıkları bir araştırmada, miliyer yayılımı olan primer akciğer adenokarsinomlu hastalarının, miliyer yayılımı olmayanlara göre daha kısa hayatta kalma sürelerine sahip olduğunu bildirmişlerdir.

Konu ile ilgili olarak yapılmış en güncel

çalışmalardan birisi de Chang ve arkadaşlarının (2022) 182 primer akciğer kanserli olgudan 58 miliyer akciğer metastazı olan primer akciğer kanser hastalarının ilk tanı anında klinik özelliklerini ve prognozunu araştırdığı çalışmadır. Bu çalışmanın çarpıcı sonuçları; en sık miliyer akciğer metastazı görülen hücre tipinin adenokarsinom (%90,8) olduğu, miliyer metastazlı olguların %75,9'unda kemik metastazı olduğu, yine beyin metastazının istatistiksel anlamlı olarak fazla olduğu, miliyer akciğer metastazının istatistiksel anlamlı olarak daha kötü prognoza sahip olmasıydı.

Miliyer yayılım, primer akciğer adenokarsinomu ve EGFR pozitifliği arasında bir ilişki olabileceği ile ilgili çalışmalar vardır ve bu ilişki tam olarak açıklanmamıştır. Farklı radyolojik patern gösteren primer akciğer adenokarsinomunun tümör hücrelerinin akciğere yerleşmesini kolaylaştıran spesifik bir moleküler fenotip olabileceği (özellikle EGFR ekson 19 delesyonu olan olgularda) üzerinde durulmaktadır. Ayrıca yazarlar sigara öyküsü olmayan, miliyer paternli EGFR pozitif primer akciğer adenokarsinomlu olgularda bu nadir durumun klinik yüksek önemi olduğunu ve hekimlerin bu antitenin saptanmasının ardından TKİ'lerle erken tedavi ihtiyacının farkında olmaları gerektiğine dikkat çekmişlerdir (Kobayashi et al., 2006; Laack et al., 2011; Sebastian et al., 2009). EGFR pozitif primer akciğer adenokarsinomlu olgularda TKİ'lerin sağkalıma etkisi konusunda yapılan çalışmaların sonuçları çelişkilidir. Bu tedavi ajanlarının sağkalımı değiştirmediğini gösteren çalışmalar olduğu gibi (Kim et al., 2015; Zhu et al., 2008) sigara içmeyen, kadın cinsiyet, primer akciğer adenokarsinomlu EGFR pozitif olgularda TKİ'lerin daha iyi sağkalım sağladığını da gösteren çok sayıda çalışma mevcuttur (Park and Goto, 2006; Shigematsu et al., 2005).

Sonuç olarak; hastamızın sigara öyküsünün olmaması, genç olması, radyolojik görüntülemede miliyer görünüm ve üst loba lokalize lezyon gibi ipuçları hastada ilk bakışta tüberküloz düşündürse de, benzer olgularda miliyer primer akciğer adenokarsinomunun da akılda tutulması gerektiğini bu vaka sunumumuzda paylaştık. Bu tarz olgularda özellikle EGFR pozitifliğinin mutlaka gösterilmesi ve TKİ tedavisi açısından değerlendirilmesi gerekliliğine dikkat çekmek istiyoruz.

Finansal Destek: Çalışmada herhangi bir finansal destek yoktur.

Etik Onay: Olguya ait yazılı onam formu hastadan alınmıştır.

KAYNAKLAR

Chang, M. H., Chiang, K. H., Shieh, J. M., Cheng, K. C., and Ho, C. H. (2022). Analysis of non-small cell lung cancer with miliary lung metastasis in patients harboring epidermal growth factor receptor mutations. Scientific Reports, 12(1), 18182. https://doi.org/10.1038/s41598-022-23195-9

Hoffman, S. A., Manski, S., and Deepak, J. (2019). Miliary pattern on chest imaging as a presentation of EGFR-negative primary lung adenocarcinoma. BMJ Case Reports, 12(5), e228534. https://doi.org/10.1136/bcr-2018-228534

Kim, H. J., Kang, S. H., Chung, H. W., Lee, J. S., Kim, S. J., Yoo, K. H., and Lee, K. Y. (2015). Clinical features of lung adenocarcinomas with epidermal growth factor receptor mutations and miliary disseminated carcinomatosis. Thoracic Cancer, 6(5), 629–635. https://doi.org/10.1111/1759-7714.12234

Kobayashi, M., Takeuchi, T., Bandobashi, K., Uemura, Y., Ogawa, Y., Ohtsuki, Y., and Taguchi, H. (2006). Diffuse micronodular pulmonary metastasis of lung adenocarcinoma predicts gefitinib response in association with epidermal growth factor receptor mutations. Anticancer Research, 26(2B), 1621–1626. https://ar.iiarjournals.org/content/anticanres/26/2B/1621.full.pdf

Laack, E., Simon, R., Regier, M., Andritzky, B., Tennstedt, P., Habermann, C., Verth, C. Z., Thöm, I., Grob, T., Sauter, G., and Bokemeyer, C. (2011). Miliary never-smoking adenocarcinoma of the lung: Strong association with epidermal growth factor receptor exon 19 deletion. Journal of Thoracic Oncology, 6(1), 199–202. https://doi.org/10.1097/JTO.0b013e3181fb7cf1

Nicholson, A. G., Tsao, M. S., Beasley, M. B., Borczuk, A. C., Brambilla, E., Cooper, W. A., Dacic, S., Jain, D., Kerr, K. M., Lantuejoul, S., Noguchi, M., Papotti, M., Rekhtman, N., Scagliotti, G., van Schil, P., Sholl, L., Yatabe, Y., Yoshida, A., and Travis, W. D. (2022). The 2021 WHO classification of lung tumors: Impact of advances since 2015. Journal of Thoracic Oncology, 17(3), 362–387. https://doi.org/10.1016/j.jtho.2021.11.003

Park, K., and Goto, K. (2006). A review of the benefit-risk profile of gefitinib in Asian patients with advanced non-small-cell lung cancer. Current Medical Research and Opinion, 22(3), 561–573. https://doi.org/10.1185/030079906X89847

Sebastian, M., Schad, A., Schadmand-Fischer, S., Post, F., Meier, S., Springer, E., Makowski, J., Taube, C., Wiewrodt, R., Fischer, B., and Buhl, R. (2009). Hämorrhagischer Perikarderguss mit multiplen pulmonalen Rundherden bei einem 37-jährigen "Nie-Raucher" [Hemorrhagic pericardial effusion and multiple pulmonary nodules in a 37-year-old male who has "never smoked"]. Der Internist, 50(1), 91–94. https://doi.org/10.1007/s00108-008-2239-0

Sharma, S. K., Mohan, A., and Sharma, A. (2016). Miliary tuberculosis: A new look at an old foe. Journal of Clinical Tuberculosis and Other Mycobacterial Diseases, 3, 13–27. https://doi.org/10.1016/j.jctube.2016.03.003

Shigematsu, H., Lin, L., Takahashi, T., Nomura, M., Suzuki, M., Wistuba, I. I., Fong, K. M., Lee, H., Toyooka, S., Shimizu, N., Fujisawa, T., Feng, Z., Roth, J. A., Herz, J., Minna, J. D., and Gazdar, A. F. (2005). Clinical and biological features associated with epidermal growth factor receptor gene mutations in lung cancers. Journal of the National Cancer Institute, 97(5), 339–346. https://doi.org/10.1093/jnci/dji055

Umeki, S. (1993). Association of miliary lung metastases and bone metastases in bronchogenic carcinoma. Chest, 104(3), 948–950. https://doi.org/10.1378/chest.104.3.948

Wu, S. G., Hu, F. C., Chang, Y. L., Lee, Y. C., Yu, C. J., Chang, Y. C., Wu, J. Y., Shih, J. Y., and Yang, P. C. (2013). Frequent EGFR mutations in nonsmall cell lung cancer presenting with miliary intrapulmonary carcinomatosis. European Respiratory Journal, 41(2), 417–424. https://doi.org/10.1183/09031936.00006912

Zhu, J. Q., Zhong, W. Z., Zhang, G. C., Li, R., Zhang, X. C., Guo, A. L., Zhang, Y. F., An, S. J., Mok, T. S., and Wu, Y. L. (2008). Better survival with EGFR exon 19 than exon 21 mutations in gefitinib-treated non-small cell lung cancer patients is due to differential inhibition of downstream signals. Cancer Letters, 265(2), 307–317. https://doi.org/10.1016/j.canlet.2008.02.064

Nadir Olgulardan; Sinonazal Onkositik Papillom

Rare Case; Sinonasal Oncocytic Papilloma

Arzu YILDIRIM ÖZLÜK [1], Gülay TURAN [1], Zeynep Gözde MISIRLI [1]

[1] Balıkesir Üniversitesi Tıp Fakültesi Patoloji Anabilim Dalı, Balıkesir, Türkiye

Sinonazal papillomlar benign epitelyal neoplaziler olup nadir görülürler. Histopatolojik olarak üç alt tipi mevcuttur. Sinonazal onkositik papillom (SOP), diğer adı ile Schneiderian papillomu ise tüm sinonazal papillomların en nadir görülen histolojik alt tipidir. Genelde tek taraflı olarak görülür ve en yaygın yerleşim yeri maksiller sinüs olmakla birlikte çok daha nadir olarak da etmoid ve sfenoid sinüslere lokalize olabilir. SOP'ta malign transformasyon oranı düşüktür, en sık görülen malignite skuamöz hücreli karsinomdur. Malign transfomasyon odağını saptamak için materyalin tamamının örneklenmesi çok önemlidir.

Biz bu olgumuzda, sol maksiller sinüs tabanında hipermetabolik duvar kalınlaşma saptanan ''Sinonazal Onkositik Papillom'' tanısı almış 62 yaşındaki erkek hastayı sunduk.

Anahtar Kelimeler: Sinonazal papillom; Schneiderian Papillomu; Onkositik Tip.

Sinonasal papillomas are rare benign epithelial neoplasms. There are three histopathological subtypes.

Sinonasal oncocytic papilloma (SOP), also known as Schneiderian papilloma, is the rarest histological subtype of all sinonasal papillomas. It is usually seen unilaterally and the most common location is the maxillary sinus, but much less frequently it can be localized in the ethmoid and sphenoid sinuses. The malignant transformation rate is low in SOP, the most common malignancy is squamous cell carcinoma. It is very important to sample the entire material to detect the focus of malignant transformation.

In this case, we present a 62-year-old male patient diagnosed "Sinonasal Oncocytic Papilloma" with hypermetabolic wall thickening in left maxillary sinüs.

Keywords: Sinonasal Papilloma; Schneiderian Papilloma, Oncocytic Type.

Sorumlu Yazar: Arzu Yıldırım Özlük **e-posta:** arzuozluk@hotmail.com
Geliş Tarihi: 21 Mart 2025 **Kabul Tarihi:** 18 Nisan 2025 **DOI:** 10.33716/bmedj.1663077

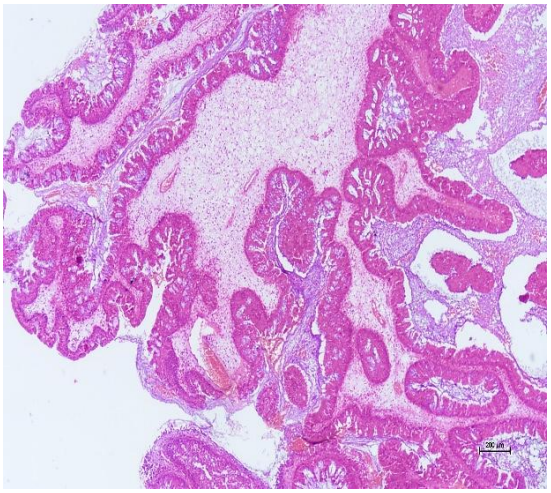
GİRİŞ

Sinonazal papillomlar nadir görülen benign epitelyal neoplazilerdir. Histopatolojik olarak üç alt tipi mevcuttur. Sinonazal papillomların en nadir görülen histolojik tipi Sinonazal onkositik papillomdur (SOP) (Kaufman MR. 2002, Vorasubin N. 2013). Histomorfolojik olarak SOP onkositik sitoplazmalı, çok sıralı kolumnar hücrelerin ekzofitik ve endofitik büyüme paterni ile karakterizedir (Barnes L). Genellikle tek taraflı olarak görülür ve en sık görüldüğü sinüs maksiller sinüs olup daha nadir olarak etmoid ve sfenoid sinüslere lokalize olabilir (Chee LW 1999, Lee JT).
Olgumuz 62 yaşında, sol maksiller sinüste lokalizasyon gösteren SOP olgusu, ender görülen bir tümör olması sebebiyle sunulmuştur.

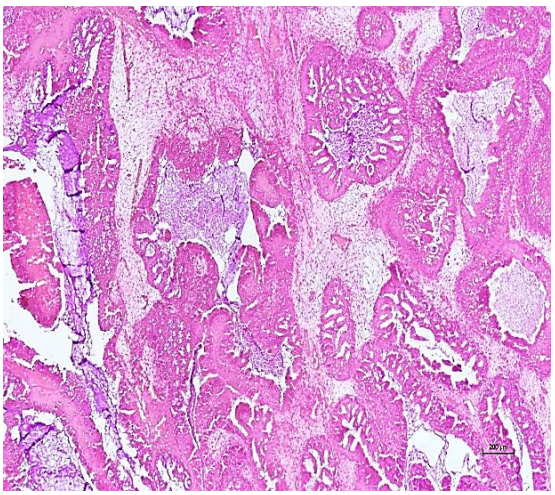
OLGU

62 yaşında erkek hasta, kolon kanseri nedeniyle onkoloji polikliniğinde takipli idi. 8 kür kemoterapi tedavisi sonrası çekilen kontrol Pozitron Emisyon Tomografisinde (PET-BT) sol maksiller sinüs tabanında hipermetabolik duvar kalınlaşması izlenmesi nedeniyle hasta Kulak Burun Boğaz Hastalıkları kliniğine sevk edilmiştir. Paranazal sinüs bilgisayarlı tomografisi sol maksiller sinüs lateral duvardan kaynaklı polipoid, etrafı sekresyon ile dolu (retansiyon kisti (?), inverted papillom (?) lezyon şeklinde raporlanmıştır.
Mevcut lezyona yönelik eksizyonel biyopsi yapılan olgunun makroskopik incelemesinde; çok parçalı olarak gönderilmiş, topluca 3x2,5x0,6 cm. ölçülerinde, krem-kahverengi, fokal alanlarda mukoid kıvamlı biyopsi örneği izlendi. Örneğin tamamı takibe alınarak incelenmiştir.

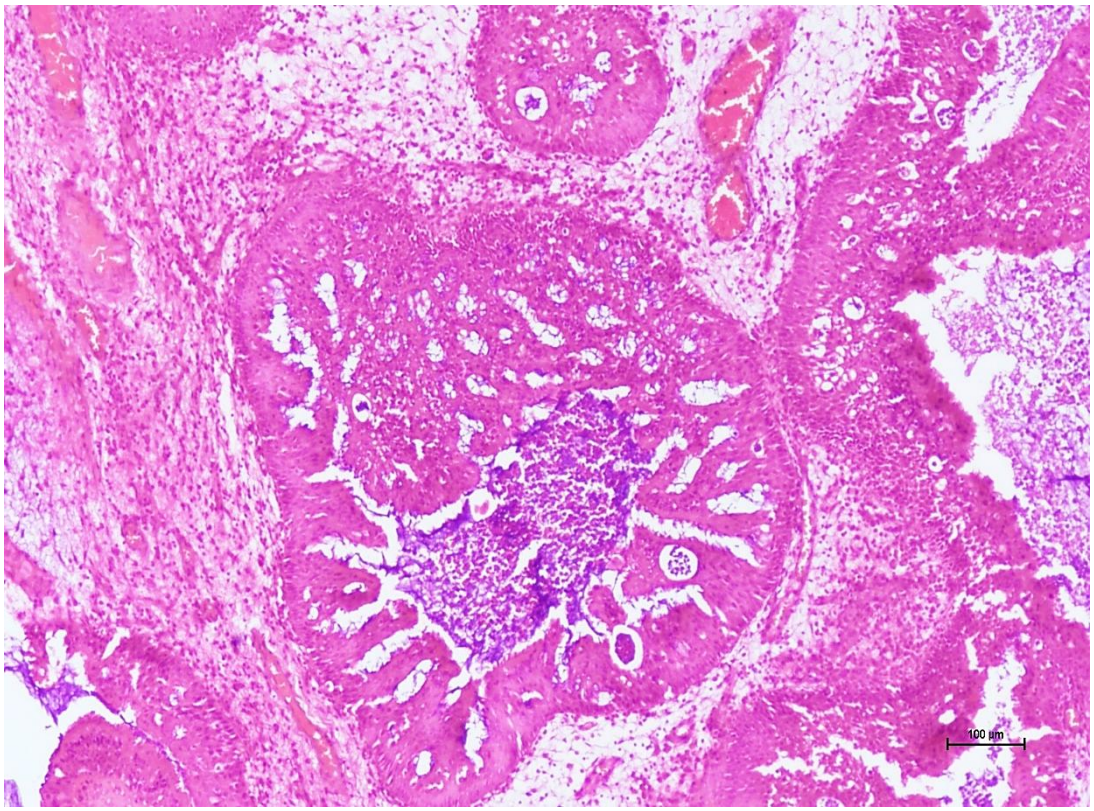
Hazırlanan kesitlerin mikroskopik incelemesinde, hem inverted hemde ekzofitik büyüme pateni gösteren, küçük, koyu, yuvarlak nükleuslu, belirgin onkositik (eozinofilik) sitoplazmalı, çok katlı kolumnar hücrelerin oluşturduğu tümöral yapı izlendi. Tümör stroması ödemli görünümde olup inflamatuvar hücreler içermekteydi. Epitel içerisinde müsin içeren küçük kistik yapılar ve bunların içerisinde nötrofil mikroapseleri dikkati çekmiştir (Resim 1, 2,3). İmmünhistokimyasal incelemede p53 ve Ki-67 ile fokal artmış immünreaktivite izlendi (Resim 4, 5). HPV ve P16 ile immunreaktıvite izlenmedi (Resim 6,7). Olgu "Sinonazal Papillom Onkositik Tip" olarak raporlandı.



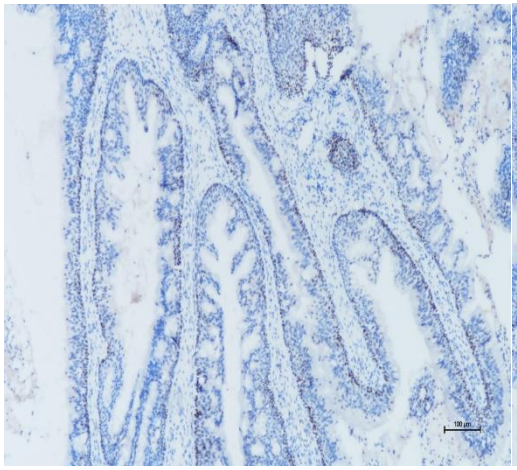
Resim 1.



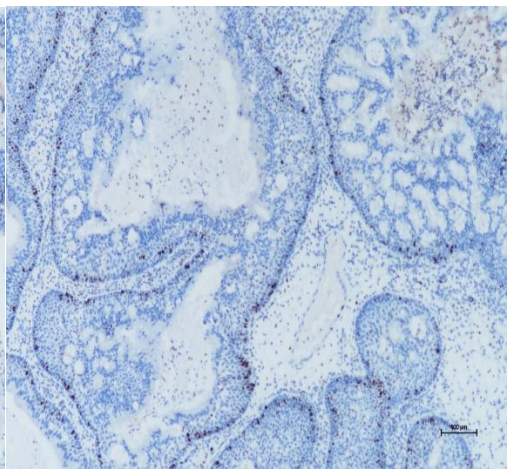
Resim 2.



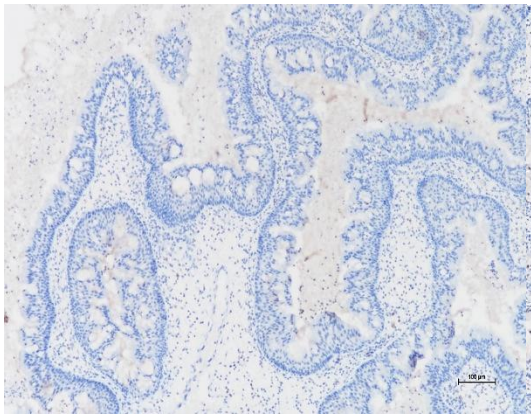
Resim 3



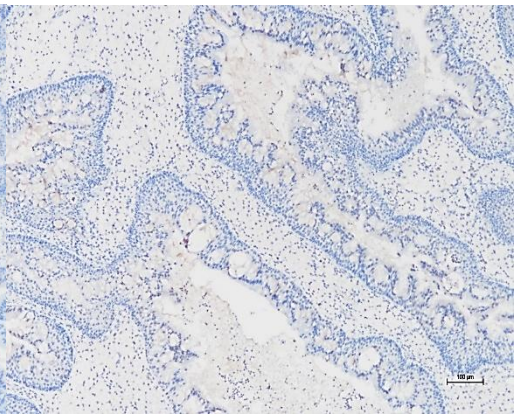
Resim 4



Resim 5



Resim 6



Resim 7

TARTIŞMA

Sinonazal veya Schneiderian papillomlar, neredeyse tamamı nazal kavite ve paranazal sinüsleri kaplayan ektoderm kaynaklı silyalı kolumnar epitelden kaynaklanır, nadiren orta kulak gibi diğer yerlerden kaynaklanabilir (Jo.ve ark., 2009; Kelly ve ark.,1980).

Sinonazal papillomların inverted, ekzofitik ve onkositik (El-Naggar ve ark.,2017) olmak üzere üç farklı histolojik subtipi mevcuttur. Bu üç subtip içinde en yaygın görülen inverted tip olup onkositik tip ise literatürde nadir olarak bildirilmiştir. Onkositik tip, sinonazal papillomların yaklaşık %5'ini oluşturur (Barnes ve ark., 1984). Genelde 50 yaş üzeri hastalarda görülür (Cunningham. 1980). İnverted ve ekzofitik papillomlar erkeklerde daha sık görülmekte iken onkositik papillomlarda cinsiyet farkı yoktur, kadın ve erkeklerde eşit sıklıkladır (Faizah ve ark.,2010). Bizim olgumuz da 62 yaşında erkek hastaydı. Etiyolojisi net olarak bilinmemektedir. Kronik inflamasyon, allerji ve sigara gibi farklı faktörler etiyolojide rol oynayabilir. Özellikle düşük riskli olmak üzere diğer tipler için insan papilloma virüsü (HPV) etkisinden bahsedilmektedir. Ancak SOP için HPV ilişkisi tanımlanmamıştır. Bizim olgumuzda immunhistokimyasal olarak HPV negatifti.

Klinik olarak en sık kitle obstrüksiyonu sebebiyle tek taraflı burun tıkanıklığı görülür ve sinonazal onkositik papillomlar, diğer papillomlara çok benzerlik gösterdiği için klinik olarak ayırt edilemez. Bilateralite SOP için çok nadirdir. Genellikle tek taraflıdır ve çoğunlukla maksiller sinüsten başlar. Bizim olgumuz da maksiller sinüste lokalize idi.

Makroskopik olarak bu lezyonlar pembemsi renkli, hafif sert kıvamlıdır. Kesin tanı histopatolojik değerlendirme ile mümkündür. Mikroskopik olarak onkositik sitoplazmalı, çok sıralı kolumnar özellikte hücrelerin hem ekzofitik hem de endofitik büyüme pateni göstermesi önemlidir. Fibrovasküler korlar, çok tabakalı, sınırları belirgin hücreler ile kaplıdır. Bu hücre sitoplazmaları bol, ince granüler ve eozinofiliktir. Bazen silya seçilebilir. İntraepitelyal müsin dolu kistlerin (nötrofilik mikroabseler) varlığı da çok tipiktir. Bu neoplazmların %20'si invaziv skuamöz hücreli karsinom veya mukoepidermoid karsinom ile ilişkili olabilir (Barnes ve ark., 1984, Kapadia ve ark.,1993).

SOP'ta malign transformasyon oranı düşüktür (Re ve ark.,2017), en sık görülen malignite invaziv skuamöz hücreli karsinomdur. Yapılan çalışmalarda, küçük hücreli karsinom, mukoepidermoid karsinom, sinonazal indiferansiye karsinom, gelişen olgular da bildirilmiştir (Kapadia ve ark.,1993). Yakın zamanda KRAS mutasyonu barındırdığı gösterilmiştir (Udager ve ark.,2017). Senkron malign transformasyon odağını saptamak için materyalin tamamının örneklenmesi çok önemlidir.

Onkositik tipte sinonazal papillomlar nadir olmakla birlikte paranazal sinüslerde uzun süreli nonspesifik bulguları olan tek taraflı kitle lezyonlarında akla gelmelidir.

Nüks ve nadir de olsa malign transformasyon olasılığı nedeniyle materyalin tamamı örneklenerek histopatolojik değerlendirmesi yapılmalıdır. Hasta klinik olarak da yakından takip edilmelidir.

Yazar Katkıları: Tüm yazarlar çalışmanın son halini denetlemiş ve onay vermişlerdir.
Finansal Destek: Çalışmada herhangi bir finansal destek yoktur.
Çıkar Çatışması: Yazarlar arasında herhangi bir çıkar çatışması yoktur.
Etik Onay: Olguya ait 25.12.2024 tarihli B:10057/2024 biyopsi numaralı Balıkesir Üniversitesi Tıp Fakültesi Patoloji Anabilim Dalına patoloji spesmeni ile ilgili işlem kabul onayı mevcuttur.

KAYNAKLAR

Barnes, L., and Bedetti, C. (1984). Oncocytic Schneiderian papilloma: A reappraisal of cylindrical cell papilloma. *Human Pathology*, 15(4), 344–351. https://doi.org/10.1016/S0046-8177(84)80031-X

Chee, L. W., and Sethi, D. S. (1999). The endoscopic management of sinonasal inverted papillomas. *Clinical Otolaryngology and Allied Sciences*, 24, 61–66. https://doi.org/10.1046/j.1365-2273.1999.00219.x

Cunningham, M. J., Brantley, S., Barnes, L., and Schramm, V. L., Jr. (1987). Oncocytic Schneiderian papilloma in a young adult: A rare diagnosis. *Otolaryngology-Head and Neck Surgery*, 97, 47–51. https://doi.org/10.1177/019459988709700113

El-Naggar, A. K., Chan, J. K. C., Grandis, J. R., Takata, T., and Slootweg, P. J. (2017). WHO classification of head and neck tumours (4th ed.). International Agency for Research on Cancer.

Faizah, A. R., Mazita, A., Marina, M. B., Jeevanan, J., and Isa, M. R. (2010). Oncocytic Schneiderian papilloma: A rare sinonasal papilloma removed via endoscopic medial maxillectomy. *Medical and Health*, 5(1), 55–59.

Jo, V. Y., Mills, S. E., Stoler, M. H., and Stelow, E. B. (2009). Papillary squamous cell carcinoma of the head and neck: Frequent association with human papillomavirus infection and invasive carcinoma. *American Journal of Surgical Pathology*, 33, 1720–1724. https://doi.org/10.1097/PAS.0b013e3181af17d2

Kapadia, S. B., Barnes, L., Pelzman, K., Mirani, N., Heffner, D. K., and Bedetti, C. (1993). Carcinoma ex oncocytic Schneiderian (cylindrical cell) papilloma. *American Journal of Otolaryngology*, 14, 332–338. https://doi.org/10.1016/0196-0709(93)90064-I

Kaufman, M. R., Brandwein, M. S., and Lawson, W. (2002). Sinonasal papillomas: Clinicopathologic review of 40 patients with inverted and oncocytic Schneiderian papillomas. *Laryngoscope*, 112(8), 1372–1377. https://doi.org/10.1002/lary.10162

Kelly, J. H., Joseph, M., Carroll, E., et al. (1980). Inverted papilloma of the nasal septum. *Archives of Otolaryngology*, 106, 767–771. https://doi.org/10.1001/archotol.1980.00790280015004

Lee, J. T., Bhuta, S., Lufkin, R., and Castro, D. J. (2003). Isolated inverting papilloma of the sphenoid sinus. *Laryngoscope*, 113, 41–44. https://doi.org/10.1097/00005537-200301000-00010

Re, M., Gioacchini, F. M., Bajraktari, A., Tomasetti, M., Kaleci, S., Rubini, C., et al. (2017). Malignant transformation of sinonasal inverted papilloma and related genetic alterations: A systematic review. *European Archives of Oto-Rhino-Laryngology*, 274(8), 2991–3000. https://doi.org/10.1007/s00405-017-4570-9

Udager, A. M., McHugh, J. B., Betz, B. L., et al. (2016). Activating KRAS mutations are characteristic of oncocytic sinonasal papilloma and associated sinonasal squamous cell carcinoma. *Journal of Pathology*, 239, 394–398. https://doi.org/10.1002/path.4702

Vorasubin, N., Vira, D., Suh, J. D., Bhuta, S., and Wang, M. B. (2013). Schneiderian papillomas: Comparative review of exophytic, oncocytic, and inverted types. American *Journal of Rhinology and Allergy*, 27(4), 287–292. https://doi.org/10.2500/ajra.2013.27.4017

Comparison of Biliary Stent and Nasobiliary Drain in Patients with Biliary Leak After Cholecystectomy

Editöre Mektup: Kolesistektomi Sonrası Biliyer Kaçak Gelişen Hastalarda Biliyer Stent ve Nazobiliyer Drenin Karşılaştırılması

İbrahim Ethem GÜVEN

Yenimahalle Training and Research Hospital, Department of Gastroenterology, Ankara, Türkiye

Dear Editor,

We are writing to express our appreciation for the recent publication in the Balıkesir Medical Journal Research titled "Comparison of Biliary Stent and Nasobiliary Drain in Patients with Biliary Leak After Cholecystectomy" by Ayte et al (Ayte and Yüksel, 2024). This study is valuable in terms of comparing the two main modalities used in the treatment of biliary leakage.

In the management of the biliary leakage, nasobiliary tubes and biliary stent placement are widely used. The goal of the both endoscopic treatment is to reduce intra-biliary pressure and allow for fistula closure (Pioche and Ponchon, 2013). Among these modalities, the advantage of nasobiliary drainage is that it allows for frequent contrast evaluation to monitor the efficiency of the treatment and to determine the exact duration of therapy required. However, the nasobiliary stent is a serious discomfort for patients, since the distal end of the nasobiliary tube is in the nasal cavity. In addition, patients may experience difficulties with feeding (Elmi and Silverman, 2005).

In this research, authors reported that both biliary stent and nasobiliary drainage were effective methods in the treatment of biliary leakage. However, in the nasobiliary drainage group, the length of hospital stay was longer. In addition, in the biliary stent group, the rate of ERCP related complication was lower. In the light of these findings, biliary stents can be safely used as an alternative to nasobiliary drainage in the treatment of biliary leakage due to their equal efficacy, less complication rate and hospitalization length. While the findings of this study are encouraging, the limited patient population from a single center indicates that further studies with larger cohorts would provide more generalizable data. Overall, we congratulate the authors for their contribution to advancing knowledge on the management of biliary leak.

Corresponding Author: İbrahim Ethem Güven **e-mail:** drethemg@gmail.com
Received: 28 October 2024 **Accepted:** 1 January 2025 **DOI:** 10.33716/bmedj.1575211

REFERENCES

Ayte, M. R., and Yüksel, İ. (2024). Comparison of Biliary Stent and Nasobiliary Drain in Patients with Biliary Leak After Cholecystectomy. *Balıkesir Medical Journal,* 7(3), 95-103. https://doi.org/10.33716/bmedj.1403519

Pioche, M., and Ponchon, T. (2013). Management of bile duct leaks. *Journal of Visceral Surgery*, 150(3 Suppl), 33-38. https://doi.org/10.1016/j.jviscsurg.2013.05.004

Elmi, F., & Silverman, W. B. (2005). Nasobiliary tube management of postcholecystectomy bile leaks. *Journal of clinical gastroenterology,* 39(5), 441-444. https://doi.org/10.1097/01.mcg.0000159215.62666.d6

BMedJ

Balıkesir Medical Journal

2017