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MMVII

Kapak resmi: Prof. Dr. Erkmen Böke (1939-2014):

İzmir'de 1939 yılında doğdu. 1962 yılında Ankara Üniversitesi Tıp Fakültesi'ni bitirdi. 1970 yılında Almanya Heidelberg Üniversitesi'nden Genel Cerrahi uzmanlığını aldı. Türkiye'ye döndükten sonra Hacettepe Üniversitesi'nde 1970 yılında Genel Cerrahi Uzmanı, 1973 yılında da Göğüs ve Kalp-Damar Cerrahisi Uzmanlığını aldı. Aynı üniversitede 1976 yılında Doçentliğe, 1982 yılında da Profesörlüğe atandı. 1982-1988 yılları arasında Hacettepe Üniversitesi Hastaneleri Başhekimliği görevinde bulundu. Almanca ve İngilizce bilen Prof. Dr. Böke, evli ve iki çocuk babasıdır.

Resim çalışmalarına 2003 yılından beri yoğun olarak devam etmiş olan Prof. Dr. Böke, ilk iki yağlıboya kişisel resim sergisini Hacettepe Üniversitesi Ahmet Göğüş Sanat Galerisi'nde 2005 ve 2007 yıllarında, üçüncü kişisel sergisini Arsuz İskender Sayek Evi'nde "Füsun'un Çiçekleri" adıyla ve dördüncü sergisi de 2011 yılında Ankara Elele Sanat Galerisi'nde açmıştır. Prof. Dr. Erkmen Böke, yedi karma sergiye katılmıştır.

Cover image: Prof. Dr. Erkmen Böke (1939-2014):

He was born in Izmir in 1939. He graduated from Ankara University Faculty of Medicine in 1962. In 1970, he received his General Surgery specialty from Heidelberg University, Germany. After returning to Turkey, General Surgeon at Hacettepe University in 1970, also in 1973, took/finished the Thoracic and Cardiovascular Surgery Specialty. He was appointed Associate Professor in 1976 and Professor in 1982 at the same university. Between 1982-1988, he worked as the Chief Physician of Hacettepe University Hospitals. Speaking German and English, Prof. Dr. Böke is married and has two children.

Prof. Dr. Böke opened his first two personal oil painting exhibitions at Hacettepe University Ahmet GÖĞÜŞ Art Gallery in 2005 and 2007, the third one at the Arsuz İskender Sayek House under the name "Flowers of FÜSUN" and the fourth one at the Ankara Elele Art Gallery in 2011. Prof. Dr. Erkmen Böke participated in seven group exhibitions.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI   Cardiac and Cardiovascular Systems / Kalp ve Kalp Damar Sistemi

The Evaluation of Cardiac Diseases associated Google Search Trends during COVID-19 Pandemic

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ABSTRACT

Introduction: To demonstrate public interest in cardiac diseases during the COVID-19 pandemic by using google trends (GT).

Methods: The authors defined 25 terms related to cardiac diseases including coronary artery disease, hypertension, heart failure, heart attack, acute myocardial infarction, pacemaker, coronary stent, coronary balloon, angioplasty, hyperlipidemia, arrhythmia, ablation, atrial fibrillation, ventricular tachycardia, aortic aneurysm, aortic stenosis, mitral stenosis, mitral valve insufficiency, pulmonary embolism, pulmonary hypertension, endocarditis, heart tumors, pericarditis, myocarditis and pericardial effusion. All keywords were analyzed in GT using the filters 'All categories', 'Web search', and 'Worldwide'. To analyze public attention to cardiac diseases during the COVID-19 pandemic, three 'eight week periods' after the COVID-19 pandemic announcement (March 11th- May 5th, May 6th – June 30th and July 1st - August 25th) were compared with the same durations in the past four years (2016-2019).

Results: Comparison of the March 11th – May 5th 2020 period, and the same periods between 2016 and 2019 demonstrated that total public interest in cardiac diseases was significantly decreased (-7.8%, p=0.001). In the comparison of the second and third eight-week periods, total public attention about cardiac diseases was comparable (p=0.245 and p= 0.365). Terms about coronary artery disease, hypertension and myocarditis were searched significantly more commonly during the COVID-19 era.

Conclusion: The present study found that public interest about cardiac diseases significantly decreased in the first eight weeks at the beginning of the COVID-19 pandemic but public interest reached the same level as previous years after eight weeks. Terms of coronary artery disease, hypertension and myocarditis were searched significantly more commonly during the COVID-19 pandemic.

Keywords: cardiac disease, COVID-19, Google, Google Trends, public interest, pandemic

COVID-19 Pandemisi Sırasında Kardiyak Hastalıklar ile İlgili Google Arama Trendlerinin Değerlendirilmesi

ÖZET

Amaç: Google arama trendlerini kullanarak COVID-19 salgını sırasında kardiyak hastalıklara karşı halkın ilgisini değerlendirmek.

Gereç ve yöntemler: Kardiyak hastalıklar ile ilgili, koroner arter hastalığı, hipertansiyon, kalp yetmezliği, kalp krizi, akut miyokard enfarktüsü, kalp pili, koroner stent, koroner balon, anjiyoplasti, hiperlipidemi, aritmi, ablasyon, atriyal fibrilasyon, ventriküler taşikardi, aort anevrizması, aort darlığı, mitral darlığı, mitral kapak yetmezliği, pulmoner emboli, pulmoner hipertansiyon, endokardit, kalp tümörleri, perikardit, miyokardit ve perikardiyal efüzyon gibi 25 terim belirlendi. Bu terimler Google arama trendlerde "Tüm kategoriler", "Web araması" ve "Dünya Çapında" filtreleri kullanılarak analiz edildi. COVID-19 pandemisi sırasında halkın kalp hastalıklarına olan ilgisini analiz etmek için, COVID-19 pandemisinin başlangıcından sonraki sekiz haftalık üç dönem (11 Mart - 5 Mayıs, 6 Mayıs - 30 Haziran ve 1 Temmuz - 25 Ağustos) son dört yıldaki (2016-2019) aynı sürelerle karşılaştırıldı.

Sonuçlar: 11 Mart – 5 Mayıs 2020 dönemi ile 2016-2019 arasındaki aynı dönemler karşılaştırıldığında, kalp hastalıklarına insanların ilgisinin önemli ölçüde azaldığı görüldü (-7.8%, p=0.001). İkinci ve üçüncü sekiz haftalık dönemlerin karşılaştırılmasında, kalp hastalıklarına yönelik insanların ilgisi benzerdi (p=0,245 ve p=0,365). Koroner arter hastalığı, hipertansiyon ve miyokardit ile ilgili terimler, COVID-19 sırasında istatistiksel olarak daha yaygın olarak arandı.

Tartışma: Çalışmamızda COVID-19 pandemisinin başlangıcında ilk sekiz haftada kalp hastalıklarına yönelik insanların ilgisinin önemli ölçüde azaldığını, ancak sekiz hafta sonra ilginin önceki yıllarla aynı seviyeye ulaştığını gördük. Koroner arter hastalığı, hipertansiyon ve miyokardit terimleri COVID-19 pandemisi sırasında istatistiksel olarak daha sık arandı.

Anahtar kelimeler: COVID-19, google, google trendler, kalp hastalığı pandemi

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The coronaviruses are enveloped RNA viruses which are associated with the common cold, bronchitis, pneumonia and severe acute respiratory syndrome in mammals. The novel coronavirus infection (COVID-19) first appeared in December 2019 and spread all over the world in a short time (1). According to the latest statistics, 70 million individuals were infected by COVID-19 and 1.6 million deaths were associated with COVID-19 and COVID-19 related complications (2). On March 11th, the World Health Organization (WHO) declared COVID-19 a pandemic and many countries announced preventive rules about social isolation, staying at home, and certain quarantine measures (3). Moreover, many outpatient clinics were closed and elective surgical operations were postponed. Due to inaccessibility of the healthcare system, patients or people with undiagnosed health problems began to use different means to get information about their symptoms and illness, including books, television and the internet.

Previous reports proved that many internet users prefer search engines to find any knowledge on the internet. Although many search engines are available, 90% of internet users prefer Google Search (Google Inc. Mountain View, California, USA) during internet research (4). Google trends (GT) is an application which presents search trend characteristics that determine statistical information for users about how often word or phrase queries are searched for, in which geography and in which languages, in Google searches (5). Teng et al. used GT to analyze public attention to the Zika virus pandemic and the authors predicted the course of the pandemic (6). Similarly, Lampos and colleagues evaluated the social interest in influenza-like illness by using GT (7).

Although, previous studies investigated public attention to different dermatologic, rheumatological and urological diseases during the COVID-19 pandemic by using GT, no study in the literature analyzed the public interest in cardiac diseases during the COVID-19 pandemic. In this study, we aimed to demonstrate public interest in cardiac diseases during the COVID-19 pandemic.

Material and Method

The present study was planned from 1st September to 5th September 2020. The authors defined 25 terms related to cardiac diseases including coronary artery disease, hypertension, heart failure, heart attack, acute myocardial infarction, pacemaker, coronary stent, coronary balloon, angioplasty, hyperlipidemia, arrhythmia, ablation, atrial fibrillation, ventricular tachycardia, aortic aneurysm, aortic stenosis, mitral stenosis, mitral valve insufficiency, pulmonary embolism, pulmonary hypertension, endocarditis, heart tumors, pericarditis, myocarditis and pericardial effusion. All keywords were analyzed in GT using the filters 'All categories', 'Web search', and 'Worldwide'.

Google Trends (GT)

Google Trends is a way to get information about any keyword among similar terms from all searches performed by using Google search in a specified time period. Also, GT can be used to decide which topic will attract the most attention before creating a website. The outcomes of internet exploration can be obtained and recorded from the official website of GT (https:// trends.google.com). The GT score of any term ranges from 0 to 100 (lowest to highest) and a better GT score of searched term is associated with higher relative interest.

To analyze public attention to cardiac diseases during the COVID-19 pandemic, three 'eight week periods' after the COVID-19 pandemic announcement (March 11th- May 5th, May 6th – June 30th and July 1st - August 25th) were compared with the same durations in the past four years (2016-2019). We arranged the starting time of the study as March 11th because WHO declared COVID-19 a pandemic on that date. In the present study, no patient data was used; thus, Institutional Ethics Committee approval was not required.

In the present study, IBM SPSS v.21 was used for statistical analyses. Arithmetic mean ± standard deviations were used to determine continuous variables. The Kolmogorov Smirnov test was applied to check the normality assumption. To show differences between groups, paired samples t test and Wilcoxon test were used. The level of statistical significance was taken as p < .05.

Results

Comparison of the March 11th – May 5th 2020 period, and the same periods between 2016 and 2019 demonstrated that total public interest in cardiac diseases was significantly decreased (-7.8%, p=0.001). Searches for 14 terms including heart failure, heart attack, pacemaker, coronary stent, angioplasty, ablation, atrial fibrillation, ventricular tachycardia, aortic aneurysm, aortic stenosis, mitral stenosis, pulmonary hypertension, endocarditis, and pericardial effusion were significantly decreased at the beginning of the COVID-19 pandemic. However, inquiries about

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coronary artery disease, hypertension, hyperlipidemia, pericarditis and myocarditis were significantly increased.

In the comparison of the second eight-week period (May 6th – June 30th 2020 vs May 6th – June 30th 2016-2019), total public attention about cardiac diseases was comparable (p=0.245). In total, eight terms (coronary artery disease, hypertension, hearth failure, arrythmia, pulmonary embolism, endocarditis, myocarditis, pericarditis) had significantly higher search frequency in comparison with the prior 4 year period. In contrast, public interest was significantly decreased for seven terms including heart attack, coronary stent, angioplasty, ablation, aortic aneurysm, aortic stenosis and mitral stenosis.

The comparison of the third eight-week period (July 1st – August 25th 2020 vs July 1st – August 25th 2016-2019) stated that total social attention about cardiac diseases was similar (p=0.365) and only searches for the angioplasty term were significantly decreased (p=0.001). Furthermore, seven keywords including coronary artery disease, hypertension, heart failure, hyperlipidemia, arrhythmia, pulmonary embolism and pericarditis had significantly higher relative interest during the COVID-19 pandemic era when compared to the prior four year period. Lastly, inquiries about seventeen terms (heart attack, acute myocardial infarction, pacemaker, coronary stent, coronary balloon, ablation, atrial fibrillation, ventricular tachycardia, aortic aneurysm, aortic stenosis, mitral stenosis, mitral valve insufficiency, pulmonary hypertension, endocarditis, heart tumors, pericarditis and pericardial effusion) were similar.

Discussion

Google sources demonstrated that half of world's population use Google as a search engine and almost a quarter of these people use Google in English (8). In today's world, many patients or patient relatives obtain first information about diseases including symptoms, methods of diagnosis and alternative treatment modalities from the internet instead of attending the professional health system. During the COVID-19 pandemic, reduced public transport facilities, quarantine practices, and postponed outpatient clinic admissions resulted in reductions in access to the health system. Thus, we had the possibility to analyze public attention about cardiac diseases by using GT. The present study showed a significant reduction of public interest about cardiac diseases in first eight weeks at the beginning of the COVID-19 pandemic. However, after the first eight weeks, social interest in cardiac diseases reached the levels of previous years.

Previous studies evaluated the public interest in different medical fields between pre-COVID-19 period and COVID-19 era. Guzman et al. investigated the public interest about cosmetic practices, general dermatological diseases and malignancies and they found a significant public interest reduction for all three terms in the first 15 days of the COVID-19 pandemic. Also, Guzman et al. demonstrated that inquiries about general dermatological conditions increased similar to the pre-COVID-19 period, one month after the beginning of the COVID-19 pandemic (9). In another study, Kardes and colleagues showed significant public attention decline in rheumatological diseases by using GT, by comparing the first 12 weeks of the COVID-19 pandemic and in same period of the previous four years (10). In parallel with these studies, we determined a significant reduction in GT search volume about cardiac diseases in the first eight weeks of the COVID-19 pandemic. We believed that intense interest of news agencies and individuals on COVID-19 in the beginning of pandemic, have a role on these results.

Each keyword has a different search volume according to google search. We determined significantly higher search volumes for two terms (coronary artery disease and hypertension) during the COVID-19 pandemic. We explain this situation by the very common occurrence of these diseases. It is well known that coronary heart disease and related complications are now the leading cause of mortality all around the world. Almost 7.2 million people die each year from coronary artery disease. However, 1.13 billion individuals suffer from hypertension according to WHO. Additionally, coronary artery disease and hypertension terms are more likely to be known by the public than other specific cardiology terms like ablation, atrial fibrillation, etc.

Myocarditis and pericarditis are rare cardiac diseases and the prevalence of myocarditis and pericarditis were about 27 and 20 cases per 100,000 individuals annually, respectively (11). On the other hand, impact of COVID-19 on cardiac system is still under investigation. Halushka et al. evaluated 277 COVID-19 patients in terms of myocarditis and authors faced with myocarditis in 20 patients (7.2%) (12). In another study, Kumar and colleagues found pericarditis as primary presentation of COVID-19 (13). Also, social media and new agencies announced myocarditis and pericarditis as possible consequences of COVID-19. Thus, myocarditis and pericarditis attracted attention of the people during this period. In parallel, we faced with higher public interest on myocarditis and pericarditis (only in first two 'eight week' period) after the beginning of COVID-19 pandemic.

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Table 1: Google trends statistics of terms and comparison of results by years											
	March 11- May 5				May 6 – June 30				July 1 – August 25		
	2020	2016-2019	% change	P value	2020	2016-2019	% change	P value	2020	2016-2019	% change	P value
Coronary Artery Disease	52.3±23.6	29.2±8.0	79.8	**0.001**	52.3±11.1	48.5±14.2	7.8	**0.039**	62.0±12.8	56.8±12.6	9.1	**0.031**
Hypertension	65.7±7.2	58.5±9.4	12.3	**0.001**	75.0±8.1	65.9±11.4	13.8	**0.001**	84.7±10.7	74.3±12.2	14.0	**0.001**
Heart Failure	60.1±6.8	66.5±9.7	-9.6	**0.001**	74.5±8.1	68.1±10.5	9.4	**0.001**	70.0±7.2	64.8±10.1	8.0	**0.001**
Heart Attack	62.1±5.1	68.7±5.6	-9.6	**0.001**	50.2±3.9	52.1±4.7	-3.6	**0.010**	35.0±2.3	35.8±6.8	-2.2	0.438
Acute Myocardial Infarction	27.5±8.9	29.7±10.1	-7.4	0.141	37.4±13.1	38.3±12.8	-2.3	0.673	41.8±14.1	42.3±17.2	-1.2	0.844
Pacemaker	56.2±7.2	70.1±12.1	-19.8	**0.001**	61.0±8.9	62.4±8.9	-2.2	0.363	74.8±9.1	72.7±12.8	2.9	0.264
Coronary Stent	22.6±8.6	28.3±11.2	-20.1	**0.001**	30.1±11.3	36.8±17.6	-18.2	**0.001**	37.1±14.3	40.6±17.1	-8.6	0.150
Coronary Balloon	24.2±11.2	22.9±9.9	5.7	0.700	20.2±8.5	17.8±11.4	13.5	0.437	18.8±10.5	20.9±13.5	-10.0	0.531
Angioplasty	46.3±11.1	63.1±13.4	-26.6	**0.001**	55.9±11.5	63.8±14.6	-12.4	**0.001**	52.6±10.8	59.9±13.8	-12.2	**0.001**
Hyperlipidemia	67.4±14.9	54.4±13.3	23.9	**0.001**	62.6±9.8	57.2±10.6	9.4	0.081	51.8±15.1	44.9±16.8	15.4	**0.005**
Arrhythmia	15.3±2.5	15.5±5.1	-1.3	0.875	69.3±9.2	57.4±13.4	20.7	**0.001**	75.8±9.8	60.7±12.6	24.9	**0.001**
Ablation	41.9±10.6	68.8±14.3	-39.1	**0.001**	57.2±9.8	63.6±13.8	-10.0	**0.001**	63.1±11.5	63.4±13.7	-0.5	0.907
Atrial Fibrillation	54.0±9.4	65.6±13.1	-17.7	**0.001**	68.3±12.6	70.8±13.4	-3.5	0.215	68.4±12.2	66.4±13.1	3.0	0.292
Ventricular Tachycardia	41.5±11.1	50.7±14.3	-18.1	**0.001**	53.3±13.6	54.4±15.5	-2.0	0.601	56.8±13.7	55.5±15.5	2.3	0.555
Aortic Aneurysm	41.4±9.1	59.3±13.4	-30.2	**0.001**	51.5±8.3	57.6±13.7	-10.6	**0.002**	58.2±13.2	60.7±15.6	-4.1	0.281
Aortic Stenosis	41.4±10.8	58.5±16.1	-29.2	**0.001**	48.8±11.9	54.6±16.1	-10.6	**0.012**	61.0±17.6	59.7±17.2	2.2	0.627
Mitral Stenosis	41.1±13.9	52.2±16.9	-21.2	**0.001**	48.3±15.4	53.6±16.6	-9.9	**0.031**	51.6±14.7	52.7±17.4	-2.1	0.671
Mitral Valve Insufficiency	22.9±13.2	29.3±18.4	-21.8	0.116	20.5±11.1	19.5±13.9	5.1	0.751	21.7±15.1	21.4±15.1	1.4	0.927
Pulmonary Embolism	11.1±2.1	10.9±6.4	1.8	0.853	59.3±7.8	53.8±10.0	10.2	**0.001**	61.8±11.3	51.6±10.6	19.8	**0.001**
Pulmonary Hypertension	48.8±9.4	60.1±13.7	-18.8	**0.001**	62.4±12.3	65.5±14.5	-4.7	0.140	60.5±14.3	62.9±13.9	-3.8	0.239
Endocarditis	48.4±8.4	58.9±11.9	-17.8	**0.001**	56.1±13.6	52.2±12.2	7.5	**0.040**	59.4±11.1	57.7±13.2	2.9	0.363
Heart Tumors	17.7±9.2	21.7±12.6	-18.4	0.150	20.2±9.9	23.7±11.2	-14.8	0.250	23.7±10.2	25.6±12.6	-7.4	0.345
Pericarditis	75.1±12.1	59.9±12.5	25.4	**0.001**	79.2±10.4	56.6±12.7	39.9	**0.001**	61.6±13.8	56.7±9.8	8.6	0.287
Myocarditis	26.1±7.1	17.6±7.2	48.3	**0.001**	28.1±6.5	23.7±9.4	18.6	**0.001**	30.2±8.3	24.5±9.8	23.3	**0.001**
Pericardial Effusion	46.2±15.2	52.2±17.2	-11.5	**0.019**	49.9±15.8	49.2±15.2	1.4	0.767	55.4±15.5	51.1±18.3	8.4	0.097
Total	44.4±20.5	50.1±22.5	-7.8	**0.001**	51.5±22.3	48.8±20.3	5.5	0.245	52.8±21.9	50.5±18.9	4.5	0.365

Diagnosis and/or treatment delays for cardiac diseases due to reasons associated with COVID-19 could increase health expenses, treatment process, morbidity and mortality. Waldstein et al. found a significant relationship between hypertension and poor cognitive function in older adults and the authors emphasized the negative impact of delayed hypertension diagnosis on brain functions (14). In another study, McKinley and colleagues showed that hospital admission delays for people with coronary artery disease prevented maximum treatment benefit (15). In a more recent study, Jella et al. tried to analyze the possible impact of COVID-19 pandemic on hip and knee surgeries and they stated that delays in treatment of hip and knee diseases will result in higher patient numbers and financial cost after pandemic (16). No study in the literature have investigated the effect of the COVID-19

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pandemic on the diagnosis and treatment of cardiac diseases, which may be a subject for another study.

Although this research is the first to analyze public attention about cardiac diseases by using GT, the present study has some limitations. First of all, Google is not the only search engine. However, Google search engine is the most used search engine with 90% usage rate. In addition, we only investigated terms in the English language. We believe that using all languages would be technically difficult and confusing for the reader. Furthermore, English is the most commonly used language in Google search and we analyzed the same population who searched with English in Google. Also, the present study only focused on the name and treatment modalities for cardiac diseases, not symptoms related with cardiac diseases which could be a topic for another research. Finally, this study focused on the period at the beginning of the COVID-19 pandemic and we believe that long-term public interest outcomes can be evaluated in further studies.

In conclusion, the present study found that public interest about cardiac diseases significantly decreased in the first eight weeks at the beginning of the COVID-19 pandemic in the comparison to the same time period in the prior four years. Additionally, public interest about cardiac diseases reached the same level as previous years, eight weeks after the COVID-19 pandemic announcement. Also, terms about coronary artery disease, hypertension and myocarditis were searched significantly more common during the COVID-19 pandemic.

Abbreviation
COVID-19: Coronavirus infection

WHO: World Health Organization

GT: Google trends

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI | Kalp ve Kalp Damar Sistemi / Cardiac and Cardiovascular Systems

Outcomes of Endovenous Cyanoacrylate Closure Using Venaseal System for Chronic Venous Insufficiency

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ABSTRACT

Purpose: Endovenous cyanoacrylate closure of saphenous veins is a nonthermal, nonsclerosant ablation technique with satisfactory results. The objective of this study is to indicate the impact of Venaseal closure system in chronic venous insufficiency.

Methods: Between March 2014- March 2019, 27 patients underwent a total of 40 procedures with the VenaSeal closure system for symptomatic saphenous vein reflux in our hospital. Beside glue ablation procedures, 16 patients underwent concomitant mini phlebectomy, 3 patients underwent perforan vein ligation and 1 patient underwent anterior accessory saphenous vein ligation. The mean age of the patients were 44.4±13.8 (19-67). Doppler ultrasound of the target vein was performed one and 12 months after treatment. Tumescent anesthesia and compression stockings were not used.

Results: Mean follow up time was 34.3 ±17 months. The anatomical success rate was 100% at 1 month and 100% at 1 year and there was no recanalization in treated vein segment. All procedures were well tolerated with a median visual analog scale (VAS) pain score of 3.0 (range: 2–5) on a 10-point scale. The mean pre-operative revised venous clinical severity score was 7.5±2.6, which improved to 2.6±0.7, p< 0.001 at one month follow-up. Deep vein thrombosis and pulmonary thromboembolism were not detected. Phlebitis was seen in 2 (7,4%) patients and hypersensitivity reaction occured in one patient (3,7%).

Conclusion: Endovenous cyanoacrylate closure of refluxing saphenous veins offers a safe and effective treatment with reduced side effects.

Keywords: Cyanoacrylate; saphenous vein; tumescent anesthesia; venous insufficiency

Kronik Venöz yetmezlikte Venaseal Sistemi kullanılarak yapılan endovenöz siyanoakrilat ile kapatma tedavisinin sonuçları

Öz

Amaç: Safen venlerin endovenöz siyanoakrilat ile kapatılması, termal ve sklerozan olmayan ve tatmin edici sonuçlara sahip bir ablasyon tekniğidir. Bu çalışmanın amacı, Venaseal kapatma sisteminin kronik venöz yetmezlikteki etkinliğini göstermektir.

Yöntem: Mart 2014 - Mart 2019 tarihleri arasında hastanemizde 27 hastaya semptomatik safen ven reflüsü için VenaSeal kapatma sistemi ile toplam 40 işlem uygulandı. Yapıştırıcı ablasyon işlemlerinin yanı sıra 16 hastaya eş zamanlı mini flebektomi, 3 hastaya perforan ven ligasyonu ve 1 hastaya ön aksesuar safen ven ligasyonu yapıldı. Hastaların yaş ortalaması 44,4 ± 13,8 (19-67) idi. Tedaviden 1 ve 12 ay sonra hedef damara Doppler ultrasonografi yapıldı. Tümesan anestezi ve kompresyon çorapları kullanılmadı.

Bulgular: Ortalama takip süresi 34.3 ± 17 aydı. Anatomik başarı oranı 1 ayda % 100, 1 yılda % 100 idi ve tedavi edilen ven segmentinde rekanalizasyon görülmedi. Tüm prosedürler, 10 puanlık bir ölçekte, medyan görsel analog skala (VAS) ağrı skoru 3.0 (aralık: 2-5) ile iyi tolere edildi. Ortalama preoperatif revize venöz klinik şiddet skoru (VCSS) 7.5 ± 2.6 idi ve bir aylık takipte 2.6 ± 0.7'ye düştü (p <0.001). Derin ven trombozu (DVT) ve pulmoner tromboembolizm (PTE) tespit edilmedi. Flebit 2 (% 7,4) hastada görüldü ve bir hastada (% 3,7) aşırı duyarlılık reaksiyonu meydana geldi.

Sonuç: Safen ven reflüsünde endovenöz siyanoakrilat kapatma, yan etkileri azaltılmış güvenli ve etkili bir tedavi sunmaktadır.

Keywords: Safen ven; siyanoakrilat; tümesan anestezi; venöz yetersizlik

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The treatment of chronic venous insufficiency (CVI) has been changed recently with the discovery of endovenous thermal ablation (ETA) techniques to treat the refluxing superficial saphenous veins. These techniques became guidelined therapy for varicose veins after saphenous vein stripping and high ligation (1). They are very effective but also painful methods with a plenty number of side effects like irritation, ecchymosis, paresthesia (2). The VenaSeal ™ closure system (Medtronic, Minnesota, USA) is a a non-thermal, non-tumescent endovenous ablation system which contains a medical tissue adhesive called n-butyl-2 cyanoacrylate and it is injected endovenously to treat superficial chronic venous incompetence. The cyanoacrylate tissue adhesive causes an inflammatory process and fibrosis when it meets with endothelium of the vein which results in closure of the treated vein segment (3). Side effects like pain and phlebitis are rare and patient satisfaction scores are high (4).

The objective of this paper is to report our experience with VenaSeal ™ glue closure system to treat incompetent great saphenous vein (GSV) and small saphenous vein (SSV), its safety and short and mid-term efficacy (one year).

Material and Methods

Between March 2014- March 2019 70 patients underwent endovenous ablation for GSV and/or SSV in our hospital. Among them 27 patients underwent glue ablation with the VenaSeal ™ closure system (Medtronic, Minnesota, USA). This study was approved by the institutional ethics committee.

The mean age of the patients were 44.4±13.8 (19-67). Baseline characteristics of the patients are listed in Table 1. Fifteen (55.6%) of them were female and 12 (44.4%) of them were male. A total of 40 endovenous cyanoacrylate closure (ECC) procedures with the VenaSeal ™ system were performed in these patients. Procedures are listed in Table 2. Nine patients underwent bilateral ablation. Beside ECC procedures, 16 patients underwent concomitant mini phlebectomy, 3 patients underwent perforator vein ligation and 1 patients underwent anterior accessory saphenous vein ligation. Venous ulcer debridement was performed in one patient in the same session. All patients had symptomatic venous reflux of GSV and/or SSV and varicosities with clinical–etiology–anatomy–pathophysiology (CEAP) classifications of C2–C4. The maximum treated venous diameter was 1.2 cm. The median diameter of GSV was 7,5 (5-12) mm and the median diameter of SSV was 6,5 (5-8,4) mm.

Table 1: Baseline characteristics of the patients	
Characteristics	Cyanoacrylate closure (n:27)
Age, mean ± SD (range), years	44.4±13.8 (19-67)
GSV diameter; median (range), mm	7,5 (5-12)
SSV diameter; median (range), mm	6,5 (5-8,4)
CEAP	C2-4
VCSS	7.5±2.6 improved to 2.6±0.7
VAS, (range)	3.0 (2–5)
Follow up, mean±SD, months	34.3 ±17

CEAP: clinical- etiology–anatomy–pathophysiology; GSV: Great saphenous vein; SD:Standard derivation; SSV: Small saphenous vein; VAS: Visual analog scale; VCSS: Venous clinical severity score

Table 2: Procedures	
Procedure	n
GSV ECC	26
SSV ECC	14
PERFORATOR VEİN LİGATİON	3
ACCESSORY VEİN LİGATİON	1
PHLEBECTOMY	16
BILATERAL	9

ECC: Endovenous cyanoacrylate closure; GSV: Great saphenous vein; SSV: Small saphenous vein

In all patients, the procedure was performed in the operating room in a sterile fashion and with the technique that was previously published in VeClose study and the instruction manual of the manufacturer (5,6). Venaseal ampule contains 5 mL of n-butyl-2 cyanoacrylate. The saphenous vein was percutaneously cannulated beneath the knee with the help of Doppler ultrasound (DUS). The introducer sheath was entered into the saphenous vein and the catheter was moved forward 5 cm distal to the saphenofemoral junction (SFJ). N-butyl cyanoacrylate solution was put into the injection gun and the delivery catheter was inserted through the sheath. Compression was applied into the proximal segment to prevent glue from escaping into the deep venous system. The catheter was pulled back at 1 cm in the first shot, then 3 cm intervals. Compression was applied for 3 minutes at the end of the first 4 cm, and then for 30 seconds in subsequent segments. The procedure was continued until all large saphenous vein parts were closed. Tumescent anesthesia (TA) was not required during the intervention and there was no need for compression stockings afterwards. All

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patients were discharged on the day of the procedure uneventfully.

Statistical Analyses

Data was analyzed with IBM SPSS for Windows version 20.0 (SPSS, Chicago, IL, USA). Kolmogorov-Smirnov test was used to test the normality of the data distribution. The continuous variables were stated as the mean ± standard deviation and the median (25.percentiles-75.percentiles). The categorical variables were stated as counts (percentages). A P value < 0.05 was taken as significant.

Results

VenaSeal™ catheter was delivered to the planned position in all cases (100% technical success). There wasn't any complication seen due to the device. Also there wasn't any need for a double puncture due to the tortuosity of the vein. All operations except two of them (one with multiple phlebectomies and one with venous ulcer debridment) were performed under local anesthesia. Patients were asked to return their normal activities as soon as possible. All of the patients had postprocedural DUS examination at the end of first month and all patients returned for ultrasound examination at the end of first year after the operation. Embolization through the whole treated vein segment with no parts of patency exceeding 5 cm in DUS examination was defined as closure. Recanalization was defined as opening along the treated vein segment exceeding 5 cm in length in DUS. Mean follow up time was 34.3 ±17 months. The longest period of follow up was 60 months. The anatomical success rate was 100% at 1 month and 100% at 1 year and there was no recanalization in treated vein segment.

All procedures were well tolerated with a median visual analog scale (VAS) pain score of 3.0 (range: 2–5) on a 10-point scale, documented on the morning afterwards by calling all of the patients by phone. The mean pre-operative revised venous clinical severity score (VCSS) was 7.5±2.6, which improved to 2.6±0.7, p< 0.001 at one month follow-up.

We found no significant side effects and complications during follow-up. Major complications such as deep vein thrombosis (DVT) and pulmonary thromboembolism (PTE) were not detected. None of the patients had postablation thrombus extension through SFJ. Phlebitis was seen in 2 (7,4%) patients and was treated with short time

medical therapy with nonsteroidal anti-inflammatory medication (NSAIDS). Sensitivity reaction with erythema and aching occured in one patient (3,7%) who was totally recovered with NSAIDS.

Discussion

The treatment of varicose veins vary from stripping and high ligation of safenous veins to endovascular ablation procedures. Many recent studies proved that endothermal ablation techniques are highly effective in venous insufficiency (7-9). Rasmussen et al. (8) reported 12-month closure rates of 94.2% for radiofrequency ablation (RF) , 95.2% for laser ablation, 95.2% for stripping, and 83.7% for sclerotherapy. Cyanoacrylate is an adhesive which has already been used for the embolization of arteriovenous malformations and management of esophageal varices (10,11). It provides quick polymerization upon contact with blood, obliterates the vein by creating fibrosis and this prevents embolization of the glue to the deep venous system with a proper distance. In our report none of the patients had postablation thrombus extension through SFJ. Almeida et al. (12) documented the first use of cyanoacrylate in refluxing GSV in 2013 and two-year results were published later (13). 38 patients with a GSV mean diameter of 6.7 mm were included in the study and the mean operation time was 21 minutes. The closure rate of 24-month was 92.2%.

In VenaSeal Sapheon Closure System Pivotal Study (VeClose) that compares RF ablation and cyanoacrylate closure, treatment with the cyanoacrylate was found to be safe and effective in the management of great saphenous vein insufficiency with freedom from recanalization of 91,4% and with low additional procedure rates in both groups in five year follow-up (14). Also in our cohort, the closure rate was 100% at 1 month and 100% at 1 year and there was no recanalization in treated vein segment. The maximum venous diameter in our report was 1.2 cm but veins with larger diameters can be treated with ECC (4,15).

In Waves study (4) which shows outcomes of Venaseal™ procedure, high occlusion rates were obtained without using compression stockings. Improvements in quality of life and venous severity scores were significant and back to normal activities time was short. In our study, the mean pre-operative VCSS was 7.5±2.6 improved to 2.6±0.7, p< 0.001 at one month follow-up.

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A European prospective multicenter study showed results of VenaSeal™ treatment in 70 patients with a 92.9% closure rate at 12-months (5). In this study, compression socks and TA were not used. Mild phlebitis was seen in 11.4% of the patients. Thromboembolic incidents were not noticed. We also didn't use compression stockings after the operations which increased patient comfort. We advice our patients to get back to normal daily activities as soon as possible. Major complications such as deep vein thrombosis (DVT) and pulmonary thromboembolism (PTE) were not detected.

Thermal ablation has side effects like skin pigmentation, paresthesia and prolonged deafness feeling due to nerve irritations especiallly in SSV interventions and these techniques require the use of TA (2). This prolongs the duration of the procedure and tumescent injections may cause ecchymosis, pain, and hematoma (16,17). Patient comfort may be another reason for glue ablation of the veins to be a recommendation. In our report all procedures were well tolerated with a median VAS pain score of 3.0 (range: 2–5) on a 10-point scale, We consider concomitant phlebectomies can make the pain scores worse. Park et al. (18) mentioned 271 procedures in 160 patients with Venaseal™ closure and 69 (25,4%) of these treated veins experienced a phlebitis like skin condition with erythema, itching, swelling, pain and tenderness that develops suddenly after several days of cyanoacrylate closure.They used steroids and antihistamines for treatment. According to some of the studies this phlebitis-like situation is an allergic or a foreign body reaction to cyanoacrylate with a histotoxic background (4,19). Gibson et al. (20) demonstrated that hypersensitivity reactions happened in 6.0% of 286 patients treated with glue ablation and most of them were mild. Lew et al. (21) reported a patient who developed multiple pustules with surrounding erythema along the treated veins 2 weeks after enovenous glue ablation. This allergic reactions was managed by immediate removal of the adhesive. In our report 2 (7,4%) patients had phlebitis and were treated with NSAIDs. Sensitivity reaction with erythema and aching occured in one patient (3,7%) who was totally recovered again with NSAIDS. Side effects such as skin pigmentation or paresthesia were not seen in our patients.

There was no device-related complication and no serious adverse event was registered at a mean 34.3 ±17 months' follow-up so our findings suggest that the VenaSeal™ procedure is safe and practicable with satisfactory results.

Study Limitations

Our study has some notable limitations. Principally, it is a retrospective study of one single centre with a small group of patients. Multicenter analyses may help to identify the outcomes of ECC.

Conclusion

Considering the advantages of glue ablation like avoidance of TA, reduced side effects and low pain score, ability of the patients to return to normal activities in general without the need for compression stockings, it can be the primary treatment of chronic venous insufficiency.

Declarations

Funding : The authors declared that this study received no financial support.

Conflicts of interest/Competing interests: No conflict of interest was declared by the authors.

Ethics approval: This study was conducted in accordance with the Declaration of Helsinki and approved by the institution's Ethics Committee (decision number: 2021-10/16 decision date: 09.06.2021).

Availability of data and material: The authors confirm that the data supporting the findings of this study are available within the article [and/or] its supplementary materials.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

The Effect of Quantifying Pulmonary Contusion Extent on The Treatment Management of Blunt Chest Trauma in Children

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ABSTRACT

Objective: Post-traumatic pulmonary contusion in children is often asymptomatic at diagnosis and has a good prognosis. The aim of this study was to investigate the clinical significance of the extent of post-traumatic pulmonary contusions and evaluate the timing of complications to determine the safe follow-up period in children with lung contusions.

Methods: The study included pediatric patients who presented to the emergency department after blunt chest trauma and had pulmonary contusion detected on chest computed tomography (CT) between January 2017 and January 2020. Based on the percentage of total lung capacity occupied on thorax CT, pulmonary contusions were classified as grade 1: <19% (mild), grade 2: 19%-27% (moderate) and grade 3: ≥28% (severe). The relationship between pulmonary contusion grade and pulmonary functional status; complications and intensive care admission was examined and the mean time to complication development was determined.

Results: The mean extent of pulmonary contusion after trauma was 17.8±8.6% (min-max, 5-100%) and mild (grade 1) contusion was significantly associated with spontaneous breathing (p=0.009). Contusion grade was not associated with the development of atelectasis, pneumonia, pleural effusion, pneumothorax (p=0.719) or intensive care admission (p=0.176). The mean time to detection of complications (atelectasis, pneumonia, pleural effusion, pneumothorax) on chest X-ray was 6.33±3.78 days (range, 2-9 days).

Conclusion: The results suggest that although no statistically significance between the extent of pulmonary contusion and complications, patients should be hospitalized for at least 48 hours, then followed-up with chest X-ray for 1 week due to possible complications after blunt chest trauma in children.

Keywords: Child, blunt chest trauma, pulmonary contusion

Akciğer Kontüzyon Yaygınlığı Ölçümünün Çocuklardaki Künt Toraks Travmalarında Tedavi Yönetimi Üzerine Etkileri

ÖZET

Amaç: Çocuklarda travma sonrası gelişen akciğer kontüzyonları sıklıkla tanı anında asemptomatik olup, iyi prognoza sahiptir. Çalışmada travma sonrası gelişen akciğer kontüzyonlarının yaygınlığının klinik öneminin sorgulanması ve akciğer kontüzyonlu olgulardaki komplikasyon gelişme zamanları değerlendirilerek güvenli takip yönetiminin belirlenmesi amaçlandı.

Method: Ocak 2017-Ocak 2020 tarihleri arasında, acil servise künt toraks travması sonrası toraks bilgisayarlı tomografilerinde akciğer kontüzyonu tespit edilen çocuk hastalar dahil edildi. Hastaların akciğer kontüzyonları, total akciğer kapasitesindeki yayılımına göre, Grade 1<%19 (hafif), %19≤Grade 2≤%27 (orta), %28≤Grade 3 (şiddetli) olarak 3 skor değerine ayrıldı. Bu skor değerleri ile solunum fonksiyon durumlarının, komplikasyonların, yoğun bakımda yatma durumlarının ilişkisi incelendi ve ortalama komplikasyon gelişme zamanları belirlendi.

Bulgular: Akciğer kontüzyon yayılım oranı ortalama %17.78±8.61 (min:%5, max:%100) olduğu ve spontan solunum durumu olan hastalar ile akciğer kontüzyonunun hafif olduğu Grade 1 akciğer kontüzyon değerlerinin anlamlı şekilde birlikte olduğu tespit edildi (p=0,009). Hastaların akciğerlerdeki kontüzyon skor değerleri ile atelektazi, pnömoni, pelvral efüzyon, pnömotoraks komplikasyonlarının gelişme durumları arasında anlamlı bir farklılığın olmadığı tespit edildi (p=0.719). Yoğun bakımda yatma durumu ile akciğer kontüzyon skor değerleri arasında anlamlı bir farklılığın olmadığı tespit edildi (p=0.176). Ayrıca takipte akciğer grafileri ile tespit edilen atelektazi, pnömoni, plevral efüzyon, pnömotoraks komplikasyonlarının 6.33±3.78 (min:2,max:9) günde geliştiği görüldü.

Sonuç: Çalışmada yer alan hastalardaki akciğer kontüzyon yayılımı ile komplikasyonlar arasında anlamlı bir ilişki tespit edilememek ile birlikte, bu hasta grubunun olası komplikasyonlar göz önüne alınarak travma sonrası en az 48 saat hastanede yatırılarak izlenmesi, sonrasında 1 hafta akciğer grafileri ile takip edilmesi gerektiği düşünülmektedir.

Anahtar Kelimeler: Çocuk, künt toraks travması, akciğer kontüzyonu

Pulmonary contusion is frequently observed in children after blunt chest trauma and occurs due to hemorrhage and edema at the alveolar level (1). Injuries affecting the lung parenchyma and mediastinal structures without rib fractures are more common in children due to their less developed connective tissue and the flexibility of their bones, rib cartilage, and mediastinal structures. Therefore, pulmonary contusions are more common in children than in adults, regardless of trauma severity. Extensive lung contusions can cause serious respiratory problems such as dyspnea, tachypnea, hemoptysis, and hypoxia (1-3). In addition, low lung capacity makes children susceptible to hypoxia, which contributes to post-traumatic morbidity and mortality (4,5). For these reasons, the diagnosis and treatment of lung contusions is considered a priority in children who have sustained trauma.

Only severe post-traumatic pulmonary contusion can be detected by chest X-ray. Therefore, the diagnosis of post-traumatic pulmonary contusion is generally made by chest computed tomography (CT), which is a more sensitive imaging method (6). Most post-traumatic lung contusions are asymptomatic and have a good prognosis, resolving spontaneously within 5 to 7 days. However, it has been reported that pneumonia, pneumothorax, hemothorax, and the need for respiratory support may arise during follow-up, particularly with extensive lung contusions (7). Because they are usually asymptomatic at diagnosis and have good prognosis in children, the clinical significance of lung contusions is controversial, especially in cases with limited lung involvement (8). In addition, a review of the literature shows that there is limited information regarding prognostic criteria and the safe follow-up period in pediatric patients with post-traumatic lung contusion (9,10).

In this study, we examined the relationship between the extent of lung contusion in relation to total lung capacity detected in thorax CT association with intensive care admission, need for respiratory support, Pediatric Trauma Score values, and frequency and timing of complications in children with lung contusion after blunt chest trauma. Our aim was to contribute to conservative treatment protocols by investigating the importance of the extent of post-traumatic lung contusion in pediatric patients and determining a safe follow-up period.

MATERIALS and METHODS

This retrospective chart review included pediatric patients who presented to the emergency department after blunt chest trauma and had pulmonary contusion detected by chest CT between January 2017 and January 2020. The study was approved by the local clinical research ethics committee (2020/17). Patient age, gender, trauma etiology, physical examination findings, Glasgow Coma Scale scores, Pediatric Trauma Score, chest X-ray and CT findings, admission to the intensive care unit, and length of hospital stay were determined. Patients were divided into three groups according to pulmonary functional status: group 1, spontaneously breathing patients; group 2, patients who received oxygen by mask or nasal cannula; and group 3, patients who received invasive mechanical ventilation. The patients' lung contusions were assessed by a radiologist using the grading system described by Wagner and Jamieson, in which the extent of contusion is determined from chest CT images as a percentage of the total lung capacity (11). According to this system, pulmonary contusions were classified as grade 1: less than 19% (mild), grade 2: 19% to 27% (moderate), or grade 3: 28% or more (severe).

Statistical Analysis

The distribution of lung contusion grades in the pulmonary functional status groups was analyzed using Spearman correlation test. Chi-square tests were used to analyze the distribution of unilateral or bilateral lung contusions in the pulmonary functional status groups and analyze the relationships between lung contusion grade and Pediatric Trauma Score, complications, and intensive care admission. Mean and standard deviation values were determined for the time to occurrence of complications.

RESULTS

The study included 52 patients with lung contusion on CT after blunt chest trauma between January 2017 and January 2020. Of the patients, 15 (28%) were girls and 37 (71%) were boys. The mean age was 9.32±4.48 years (range, 2-17 years). The most common etiology of trauma was pedestrian accidents (n=18; 34.6%) and the least common was blunt force trauma (n=2; 3.8%). The mean extent of lung contusion in relation to total lung capacity was 17.78±8.61% (range, 5%-100%). The extent of lung contusion was grade 1 in 35 patients (67.3%), grade 2 in 6 patients (11.5%), and grade 3 in 11 patients (21.1%) (Figure 1-3). Contusions were unilateral in 28 patients (53.8%) and bilateral in 24 patients (46.2%). Physical examination at admission revealed dyspnea, tachypnea, and reduced respiratory sounds in 9 patients (17.3%). Of these patients, 8 also had pneumothorax and 1 had hemopneumothorax.
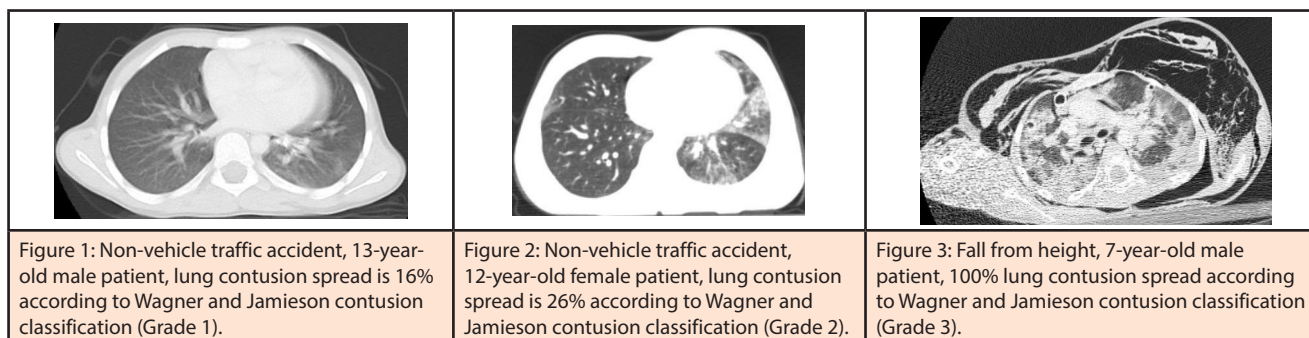
Figure 1: Non-vehicle traffic accident, 13-year-old male patient, lung contusion spread is 16% according to Wagner and Jamieson contusion classification (Grade 1).

Figure 2: Non-vehicle traffic accident, 12-year-old female patient, lung contusion spread is 26% according to Wagner and Jamieson contusion classification (Grade 2).

Figure 3: Fall from height, 7-year-old male patient, 100% lung contusion spread according to Wagner and Jamieson contusion classification (Grade 3).

Chest CT demonstrated isolated pulmonary contusion in 39 patients (65.6%), while 13 patients (34.6%) also had pneumothorax, hemopneumothorax, rib fracture, and/or pneumomediastinum. On chest X-rays taken at emergency admission, 4 patients (7.7%) had findings suggesting contusion. In addition, 3 patients (5.7%) with normal chest X-ray at diagnosis exhibited findings consistent with atelectasis limited to the upper or middle lobe of a single lung on chest X-rays obtained during the first 72 hours of follow-up. It was determined that 2 of these patients received mechanical ventilation after trauma, while 1 patient received oxygen support via nasal cannula in the intensive care unit. Atelectasis resolved in a mean of 6.44±1.34 days (range, 5-8 days) with respiratory physiotherapy.

With conservative treatment, 45 patients (86%) recovered with no problems, whereas 7 patients who were followed in the intensive care unit developed complications of atelectasis (n=3), pneumonia (n=1), pleural effusion (n=1), and pneumothorax (n=2) at a mean of 6.33±3.78 days (range, 2-9 days) in follow-up of patients. The only mortality occurred in one patient with extensive subarachnoid hemorrhage. Evaluation of pathologies detected in addition to chest trauma showed that findings of head trauma were most frequent (n=9; 17.3%), while 33 patients (63.5%) had no trauma findings other than chest trauma.

When grouped according to their respiratory functional status at time of admission, there were 38 patients in group 1 (spontaneously breathing patients), 10 patients in group 2 (patients receiving oxygen via mask or nasal cannula), and 4 patients in group 3 (invasive mechanical ventilation). The patients in group 2 received oxygen via mask or nasal cannula for a mean of 2.2±2.48 days (range, 1-9 days) and those in group 3 were intubated for a mean of 7.25±3.3 days (range, 3-11 days). The relationship between lung contusion extent and pulmonary functional status groups was examined (Table 1). There was a significant association between spontaneous breathing and grade 1 (mild) lung contusion (p=0.009) but there was no significant difference in the distribution of lung contusion extent in intubated patients (p>0.05). Unilateral or bilateral lung contusions did not differ significantly in terms of pulmonary function (p=0.522).

Table 1. Distribution of pulmonary functional status according to extent of lung contusion.

Respiratory Functional Status	Grade			p
	Grade 1, n (%)	Grade 2, n (%)	Grade 3, n (%)	
Spontaneous*	29 (82.9)	5 (83.3)	4 (36.4)	
Mask high-flow oxygen	4 (11.4)	1 (16.7)	5 (45.5)	0.009
Intubated	2 (5.7)	0 (0.0)	2 (18.2)	

*Grade 1 (mild) lung contusion was significantly associated with spontaneous breathing (p=0.009).

The patients' mean Glasgow Coma Scale score determined during evaluation in the emergency department was 14.23±1.64 (range, 6-15), and their mean Pediatric Trauma Score at admission was 9.34±1.85 (range, 2-12). Pediatric Trauma Score was not significantly associated with lung contusion grade (p=0.07). No significant differences in the distribution of atelectasis, pneumonia, pelvic effusion, and pneumothorax complications were observed according to lung contusion grade (p=0.719) (Table 2).

Table 2. Distribution of complications according to extent of lung contusion in follow-up of patients.

Complication	Grade			p
	Grade 1, n (%)	Grade 2, n (%)	Grade 3, n (%)	
Atelectasis	0	1 (1.9)	2 (3.2)	
Pneumonia	0	0	1 (1.9)	
Pneumothorax	1 (1.9)	1 (1.9)	0	0.713
Pleural effusion	1 (1.9)	0	0	
None	33 (63.4)	4 (7.6)	8 (15.3)	

There was no significant relationship between complications and the extent of lung contusion (p=0.719).

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Thirty-four patients (65.4%) were followed up only in the ward after diagnosis, while the other 18 patients (34.6%) were monitored in the intensive care unit. The mean length of hospital stay was 5.68±4.41 days (range, 2-30 days) in the spontaneous breathing group, 12.60±5.64 days (range, 7-23 days) in the oxygen support group, and 25±7.75 days (range, 10-45 days) in the invasive mechanical ventilation group. The rate of intensive care admission did not differ significantly according to grade of lung contusion (p=0.176) (Table 3).

Table 3. Distribution of intensive care admissions according to extent of lung contusion				
Admitted to intensive care	Grade			p
	Grade 1, n (%)	Grade 2, n (%)	Grade 3, n (%)	
Yes*	8 (22.9)	1 (16.7)	9 (81.8)	0.176
No	27 (77.1)	5 (83.3)	2 (18.2)	
*There was no significant relationship between intensive care admission and extent of lung contusion (p=0.176).				

DISCUSSION

There was no acute distress syndrome or mortality (except one with severe intracranial bleeding) with the well-known good prognosis of chest blunt trauma in children accoding to the literature in this study (12,13). It was observed that pneumothorax, hemothorax, pneumonia, and pelvic effusion developed as complications after a mean of 6.33±3.78 days (range, 2-9 days) of follow-up. There was no significant difference in the distribution of these complications according to the extent of lung contusion (p=0.719). According to these results, unlike adulthood chest traumas, children have better prognosis independent from the extent of pulmonary contusion. However, patients should still be hospitalized for at least the first 48 hours and be followed up with chest X-ray for 1 week due to possible complications.

One of the risk factors associated with poor clinical prognosis in patients with post-traumatic lung contusion is that the contusion is visible on direct X-ray as well as CT (14, 15). In this study, only 4 patients had findings consistent with lung contusion on both chest X-ray and CT at the time of diagnosis. The mean extent of lung contusion in our patients was 17.78±8.61%, which suggests that pulmonary X-rays are not sensitive enough to detect this degree of contusion. In addition, complications such as atelectasis, pneumothorax, pneumonia, and pleural effusion, which may be associated with lung contusion and are detected by chest X-ray, occurred in 7 (13.5%) of the patients in this study during follow-up. This shows that even if they lack diagnostic value, chest X-rays are a useful examination in the follow-up of this patient group.

Oppenheimer et al. reported that the pathophysiological consequences of lung contusions may result in atelectasis due to loss of perfusion and decreased lung compliance (16). Three (5.7%) of the patients whose chest X-rays were normal at diagnosis developed lesions consistent with atelectasis on chest X-rays obtained within the first 72 hours. In addition, these patients also required respiratory support starting from admission, despite having initially normal chest radiographs. These results seem to contradict the idea that the visibility of post-traumatic lung contusion on chest X-rays is a strong determinant of clinical severity and prognosis.

Risk factors related to clinical prognosis and pulmonary functional status in patients with post-traumatic lung contusion include bilateral lung contusion and concomitant pneumothorax at diagnosis (14, 15). There was no significant relationship between pulmonary contusion in one or both lungs and pulmonary functional status (p=0.522). However, all 9 patients who had dyspnea, tachypnea, and decreased respiratory sounds in clinical evaluation performed at admission had pneumothorax or hemopneumothorax accompanying the lung contusion. On the other hand, Beshay et al. reported in their study of adult chest trauma patients that lung contusion involving more than 50% of total lung volume was the most important factor increasing the risk of long-term intubation, pneumonia, and ARDS (17). Spontaneous breathing was significantly associated with grade 1 (mild) lung contusion (p=0.009), while there was no significant difference in the distribution of lung contusion grade in intubated patients (p>0.05). Results of this study supports that children have better prognosis free from the extent of pulmonary contusion then adults.

The Pediatric Trauma Score is a prognostic indicator commonly used in post-trauma evaluation (18). Nair et al. reported that Pediatric Trauma Score may be an indicator for ARDS, which is one consequence of lung contusions (19). In the present study, analysis of the relationship between lung contusion grades and Pediatric Trauma Score values for trauma severity showed that the distribution was homogeneous and there was no significant difference (p=0.07). The fact that the mean extent of lung contusion in our patients was 17.8±8.6% should be considered when evaluating this result.

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With advantages such as rapid, high-resolution images and widespread accessibility, CT continues to be the gold standard in the diagnosis of lung contusions after chest trauma (20). Nair et al. emphasized the importance of detecting post-traumatic lung contusions and reported an increased risk of ARDS in severe cases with extensive contusions (19). Raghavendran et al. reported that even patients with lung contusions barely detectable on CT could have oxygenation problems (15). However, regarding to the advantage of computed tomography, Marth et al. reported that in addition to pneumothorax and hemothorax, CT was highly sensitive in the identification of lung contusion and lacerations involving the parenchyma (21). However, they also reported that only 6.5% of these cases had CT results that would lead to changes in the trauma treatment regimen (21). CT was preferred as the primary examination used to detect lung contusions due to its diagnostic superiority. There was no significant association between the extent of lung contusion detected on CT and complications that occurred during clinical follow-up and changed the treatment strategy (p=0.719). In addition, there was no significant difference in lung contusion grade in the study according to intensive care admission (p=0.176). Taken together, these results show that lung X-ray is insufficient in the diagnosis of lung contusion of the mean extent observed in this study, and CT maintains its superiority in determining the treatment strategy at time of diagnosis when additional pathologies such as pneumomediastinum are considered.

In this study, the complications of pneumothorax, pneumonia, pleural effusion, and atelectasis were detected on chest X-ray at a mean of 6.33±3.78 days (range, 2-9 days) after traumatic lung contusion. Miller et al. suggested that patients with extensive post-traumatic lung contusion usually show clinical deterioration within the first 24 to 48 hours (8). Although the mean extent of post-traumatic lung contusion in the pediatric patients in our study seems safe in terms of complications, we believe that patients should be hospitalized for at least the first 48 hours after trauma and followed up with chest X-ray for 7 days.

This study has some limitations. As it was a retrospective chart review, there is no clinical and radiological data demonstrating the long-term course of lung contusions. The study evaluates the short-term efficacy of prognostic indicators used to determine lung contusion severity. Prospective studies on larger study groups are needed to determine the long-term effects of lung contusions in pediatric patients.

CONCLUSION

Blunt chest trauma causing pulmonary contusion can be life-threating (15). We belive that, children have better prognosis independent from the extent of pulmonary contusion than adults. However, patients can develop complications detectable by chest X-ray, such as atelectasis, pneumonia, pelvic effusion, and pneumothorax, within 6.33±3.78 days (range, 2-9 days) of follow-up. This suggests that these patients should be hospitalized for at least 48 hours and followed with chest X-ray for 1 week after trauma.

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The Effect of Pulmonary Contusion Extent

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Frequency of Maxillofacial Injuries and Accompanying Types of Maxillofacial Fractures

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ABSTRACT

Objective: In this study, it was aimed to examine the characteristics, causes of trauma, and age distribution of maxillofacial fractures in patients admitted to the emergency department as a result of blunt maxillofacial trauma.

Materials and Methods: Between 01.01.2015 and 31.12.2019, 1248 patients who were admitted to the emergency department with maxillofacial trauma were evaluated retrospectively. Patients who underwent CT examination and were diagnosed with fracture were included in our study.

Results: The median age of the patients was 32 years, and 71.2 % of them were male. Trauma-related fractures were detected in 239 (19.2%) of 1248 patients with maxillofacial trauma. The affected group of participants comprised of individuals of younger age and male gender. The main mechanisms of trauma were traffic accidents and falls from height. Orbital fractures were the most common, followed by maxillary bone fractures. Severe maxillofacial fractures were often accompanied by traumatic brain injuries. The mortality rate was low (0.4%) in patients with isolated maxillofacial trauma compared to patients with polytrauma (16%) (p= 0.001). In our study, it has been shown that face AIS (Odds ratio: 2.79) and Glasgow coma score (Odds ratio: 0.98) can predict mortality in trauma patients with multivariable regression analysis.

Conclusion: As a result of this study, we determined the relationship between variables associated with common traumatic injury in the maxillofacial region. Age, gender, and injury mechanism are of great clinical importance in the identification and prediction of traumatic maxillofacial fractures.

Keywords: Traffic Accidents, Maxillofacial Injuries, X-Ray Computed Tomography, Mortality

Üst Çene-Yüz Yaralanmalarının Sıklığı ve Eşlik Eden Üst Çene-Yüz Kırıklarının Türleri

ÖZET

Amaç: Bu çalışmada künt üst çene-yüz (ÜÇ-Y) travma sonucu acil servise başvuran hastalarda ÜÇ-Y kırıkların özellikleri, travma nedenleri ve yaş dağılımının incelenmesi amaçlanmıştır.

Hastalar ve Yöntem: 01.01.2015 - 31.12.2019 tarihleri arasında acil servise ÜÇ-Y travması ile başvuran 1248 hasta geriye dönük olarak değerlendirildi. Çalışmamıza bilgisayarlı tomografi incelemesi yapılan ve kırık tanısı konulan hastalar dahil edildi.

Bulgular: Hastaların ortanca yaşı 32 idi ve % 71.2'si erkekti. ÜÇ-Y travmalı 1248 hastanın 239' unda (%19.2) travmaya bağlı kırık tespit edildi. Etkilenen katılımcı grubu, daha genç yaştaki ve erkek cinsiyetteki bireylerden oluşmuştur. Travmanın ana mekanizmaları trafik kazaları ve yüksekten düşmelerdi. Göz çukuru kırıkları en yaygın olanıydı ve bunu üst çene kemik kırıkları izledi. Ciddi ÜÇ-Y kırıklara sıklıkla travmatik beyin yaralanmaları eşlik ediyordu. İzole ÜÇ-Y travmalı hastalarda, çoklu travmalı hastalara göre (% 16) ölüm oranı düşüktü (% 0.4) (p = 0.001). Çalışmamızda çok değişkenli gerileme analizi ile travma hastalarında yüz AIS (Odds oranı: 2.79) ve Glasgow koma skorunun (Odds oranı: 0.98) ölüm oranını öngörebildiği gösterilmiştir.

Sonuç: Bu çalışma sonucunda ÜÇ-Y bölgesinde sık görülen travmatik yaralanma ile ilişkili değişkenler arasındaki ilişkiyi belirledik. Travmatik ÜÇ-Y l kırıkların tanımlanmasında ve öngörülmesinde yaş, cinsiyet ve yaralanma mekanizması büyük klinik öneme sahiptir.

Anahtar Kelimeler: Trafik Kazaları, Üst Çene Yaralanmaları, Yüz yaralanmaları, X-Ray Bilgisayarlı Tomografi, Ölüm Oranı

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Maxillofacial traumas have become an important health problem worldwide with the increase in traffic accidents. Given that the maxillofacial bones are anatomically aligned in a certain balance and their close proximity to the central nervous system, traumatic injuries are of critical importance. (1). Worldwide, the most common cause of maxillofacial fractures (MF) is traffic accidents. MF is seen less frequently due to falls, drowning, sports injuries, and work accidents (2-4). Previous studies in the literature have shown that MF is mostly detected in men and between the ages of 21-30. The male/female ratio has been reported between 2/1 and 11/1 in the literature (2,5-7). MF often leads to facial asymmetry, deformity, loss of chewing and visual function, and the need for long-term treatment in patients.

The most reliable method to determine the presence and extent of MF in patients with maxillofacial trauma is maxillofacial computed tomography (CT) (3). In patients admitted to the emergency room with polytrauma, maxillofacial CT should be the first choice of imaging modality in the presence of suspected maxillofacial injury. This study, it was aimed to determine the frequency and distribution of MF in patients admitted to the emergency department with maxillofacial trauma and who had CT scanning performed.

Material and Method

Study Design

In this study, 239 patients who had MF among 1248 patients admitted to the emergency department of our hospital with maxillofacial trauma between 01.01.2015 and 31.12.2019 were included. Maxillofacial CT examinations of the patients were reinterpreted by two radiologists experienced in head and neck radiology.

The patients included in our study were retrospectively evaluated in terms of age, gender, Glasgow Coma Score (GCS) value, face-AIS (Abbreviated Injury Scale), presence of MF, and fracture location. Clinical evaluations were obtained from medical records and consultation data made at the time of initial admission to the emergency department.

Statistical Analysis

SPSS 24.0 (Statistical Package for Social Sciences version - SPSS Inc. Chicago, Illinois, USA) package program was used for statistical analysis. The difference between categorical variables was evaluated with the chi-square test. Multivariate regression analysis was used to evaluate the relationship between variables and mortality in patients with polytrauma, and the Odds ratio was calculated with a 95% confidence interval (CI) for the values. A p-value of <0.05 was considered significant.

Results

The mean age of the patients included in the study was 32 ± 12.9 years and 71.2 % of the patients were male. The mechanism of maxillofacial trauma was due to traffic accidents in 49% of the patients, falling from a height of 27%, and other causes in 24%. The demographic data of the patients are presented in table 1.

Table 1. Demographic data of the patients, gender, cause of trauma, and deaths due to trauma are observed in the table			
		Maxillofacial fracture patients diagnosed	The rate in percentage (%)
Age		32 ± 12.9	-
Gender	Woman	69	28,8
	Male	170	71,2
Reason for temper	Traffic accident	117	49
	Falling from high	64	27
	Other causes of trauma	58	24
Death		17	7,2

The distribution and location of MFs following maxillofacial trauma are summarized in table 2. In polytraumatic patients, 42 % of MF patients with associated trauma had skull base fractures, 54 % traumatic brain injury (TBI), 29 % thorax injury, 19 % traumatic injury to the abdomen, and 52 % long bone fractures. The face-AIS score corresponded to grade II in 61 % of the patients, grade I in 37 %, and grade III in the remaining 2%. The mean GCS value of the patients at the time of admission to the emergency department was found to be 11.3 ± 2.4. The mortality rate due to trauma in the emergency service of patients diagnosed with MF was 7.2%.

The most common cause of trauma in patients diagnosed with MF was found to be a traffic accident, with statistical significance compared to the other groups. (p <0.001). Young age (<35) and male gender were predominant in this patient group (p <0.001). Multivariable regression analysis shows that face-AIS (Odds ratio: 1.35 (95% CI: 1.120--1.561)) and GCS (Odds ratio: 2.79 (95% CI: 2.645--2.983)) reliably predict mortality in patients diagnosed with MF.

Table 2. Distribution and location of Maxillofacial fractures monitored as a result of maxillofacial trauma, Face-AIS score, accompanying injury in polytrauma are shown in the table.		Patients diagnosed with a maxillofacial fracture	The rate in percentage (%)
Glasgow coma scale (when entering the emergency room)		11.3 ± 2.4	-
Face- AIS score	I. degree	88	37
	II. degree	146	61
	III. degree	5	2nd
Accompanying injury in polytrauma	Skull base fractures	one hundred	42
	Traumatic brain injury	129	54
	Rib cage injury	69	29
	Abdominal injury	45	19
	Long bone fractures	124	52
Maxillofacial fracture	Orbital fractures - blow out	127	53
	Orbital fractures - linear, non-displaced	138	58
	Maxilla	114	48
	Mandible	83	35
	Nasal bone	92	38
	Zygomatic arch	68	28
	Ethmoid bone	76	32

Discussion

Traffic accidents cause an average of more than 1.2 million deaths and 20-50 million people to be injured or disabled annually worldwide, and it is an important public health problem in our country as well as all over the world (8). In the global situation report published by the World Health Organization in 2015, it was reported that deaths from traffic accidents occur most commonly among the 15-29 age group. (8). Maxillofacial trauma most frequently develops due to traffic accidents (2). In our study, 239 patients with MF among 1248 patients who were admitted to the emergency department due to maxillofacial trauma were evaluated retrospectively. In our patient group, the most common cause of trauma was found to be a traffic accident (49%). As seen in the literature, the male gender (71.2%) and the young age group were predominantly affected, and orbital fractures (Fig. 1) (53% and 58%) were the most common, followed by maxillary fractures (Fig. 1,2) (48%). In accordance with the literature, MF was most often accompanied by traumatic brain injury (54%) and long bone fractures (52%) in our study.
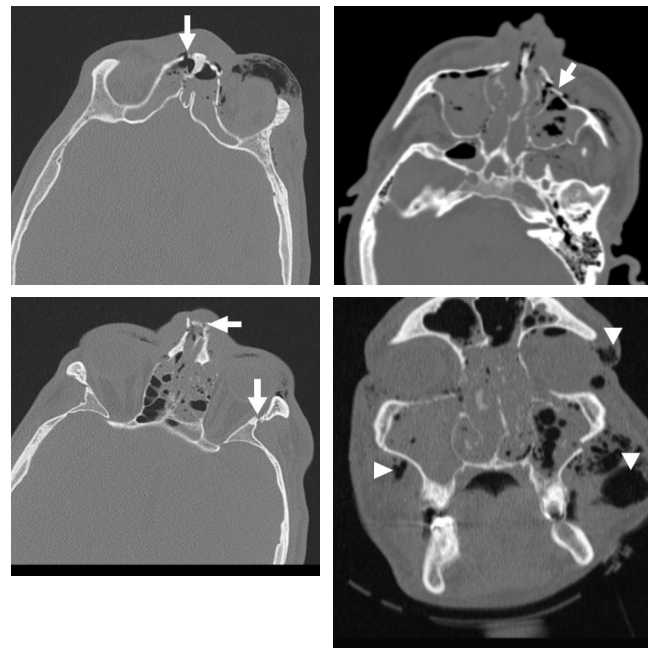
Figure 1. In a 45-year-old male patient fractures (arrows) in the maxillary bone, the ethmoid bone, nasal septum and frontal bone in the axial (a, b,c) and coronal (d) sections of unenhanced maxillofacial CT performed under emergency conditions following traffic accident. Significant air was observed under the skin secondary to trauma(arrowheads).

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Figure 3. In a 25-year-old male patient, angulus fracture in the right mandible due to fall in a 25-year-old male patient in the coronal (a) and sagittal (b) unenhanced CT images (arrows).

Figure 2. In a 50-year-old male patient, fractures in the anterior, lateral, and base of the right maxillary bone (a), pterygoid bones, and the base of the right maxillary bone in the axial (a, b) and coronal (c) unenhanced maxillofacial CT scans(arrows).

Similar to our study, 62-79.2% of the affected patients were male in previous studies evaluating the results from emergency room admissions and traffic accidents (9.10). In studies that included patients diagnosed with MF from those admitted to the emergency department due to traffic accidents and maxillofacial trauma, similar to our study, facial bone fractures were most commonly found in a group of patients aged 21-30 years (1,2). In the literature on patients diagnosed with MF, mandible fractures were reported to be most common in some studies (Fig. 3) (2, 11), while in other groups of studies, similar to our study, zygomatic bone (Fig. 4), frontal and orbital fractures were most frequently seen. (12,13). MF was most commonly accompanied by traumatic brain injury in the literature in parallel with our study. Al- Hassani et al. (14) have found TBI in 8 % of patients presenting with maxillofacial trauma and reported as poor prognosis criterion. In our study, the rate of TBI detection in patients presenting with maxillofacial trauma at 10.3% is consistent with the literature.

Figure 4. A 32-year-old male patient showed multiple maxillofacial smash-style fractures in axial CT (a) and volume rendering reformat (b) images after an in-vehicle traffic accident.

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Püsküllüoğlu et al. (15) have reported a GCS value of 14-15 in patients who presented with a traffic accident. Mirzai et al. (16) have found that the GCS value of 75.1% of patients with multiple traumas affecting at least one organ system after a traffic accident was between 14-15. Al-Hassani et al. (14) found the mean GCS value of patients with maxillofacial trauma to be 11.6, which is very close to our study. In the same study, face-AIS score distribution was reported similarly to our study (i.e. grade I: 33%; grade II: 65.7%; grade III: 1.3%) (14). Similarly, in this study, the face-AIS score and GCS value have been reported as important factors in predicting mortality in patients with maxillofacial trauma presenting to the emergency service (14).

Our study has some limitations. Due to the retrospective nature of our study, it was difficult to access the clinical data of the patients. Motion artifacts observed during CT scan in some of the patients with maxillofacial trauma caused difficulties in identifying the location of the fractures. Since our hospital is a tertiary health center, the high number of patients with polytrauma referred from surrounding hospitals has also led to a high frequency of MF among patients with polytrauma, which may have caused bias.

Conclusion

In conclusion, maxillofacial trauma is a clinically common type of trauma that causes moderate to severe injury. The most common fracture types are blow-out type orbital fractures, linear nondisplaced orbital floor fractures, and maxilla fractures. The presence of MF in polytrauma patients with maxillofacial trauma should be investigated with maxillofacial CT examination. In this patient group, face-AIS and on-admission GCS are reliable biomarkers to predict mortality.

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Investigating Death Anxiety in Institutionalized Elderly Individuals Based on Some Variables

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ABSTRACT

Objective: For the purpose of guiding professional groups working with elderly individuals and families, we aimed to determine the views of elderly individuals on death, anxiety-creating factors and the variables that affect these.

Material and Method: By applying the Standardized Mini-Mental Examination Test/ Standardized Mini–Mental State Examination (SMMSE) on 96 elderly individuals living at institutions (nursing homes and old people's homes), questionnaires, a sociodemographic data form and the Templer Death Anxiety Scale were applied on 82 elderly individuals with test scores of 27 or higher with the method of face-to-face interviews.

Results: It was found that the variables of age, gender, marital status and frequently thinking of death were effective on death anxiety, while income, presence of a chronic disease, the status of having children and educational status were not effective in terms of death anxiety. It was determined that only 16 (19.5%) of the participants were afraid of death very much, while all of them (n=82, 100%) were afraid of dying by suffering pain.

Conclusion: The anxieties of the elderly individuals related to death varied based on some sociodemographic variables, and the results of our study showed that all participants were anxious about 'dying while suffering from pain'. Knowing about anxieties and fears regarding death will be guiding the clinical practices of especially healthcare professional groups.

Keywords: Aged, anxiety, nursing homes, pain, death

Kurumda Yaşayan Yaşlı Bireylerde Ölüm Kaygısının Bazı Değişkenler Açısından İncelenmesi

ÖZET

Amaç: Yaşlı bireylerle çalışan meslek gruplarına ve ailelere yol gösterebilmek için, yaşlı bireylerin ölümle ilgili düşüncelerini, kaygı yaratan etmenleri ve bunları etkileyen değişkenleri belirlemeyi amaçladık.

Gereç ve Yöntem: Burdur ilinde kurumda yaşayan (bakımevi ve huzurevi) 96 yaşlı bireye standardize mini mental test uygulanarak, test puanı 27 ve üzeri olan 82 yaşlıya sosyodemografik veri formu ve Templer Anksiyete Ölçeği'ni kapsayan anket formu yüz yüze görüşme tekniği ile uygulanmıştır.

Bulgular: Yaş, cinsiyet, medeni durum, sık sık ölümü düşünme değişkenlerinin ölüm kaygısında etkili değişkenler olduğu; gelir, kronik hastalık varlığı, çocuk sahibi olma ve eğitim durumu değişkenlerinin yaşlılarda ölüm kaygısı açısından etkili değişkenler olmadığı bulunmuştur. Yaşlı katılımcıların sadece 16'sının (%19,5) ölümden çok korktuğu ancak katılımcıların tamamının (n=82, %100) acı çekerek ölmekten korktukları saptanmıştır.

Sonuç: Yaşlı bireylerin ölümle ilgili kaygıları bazı sosyodemografik değişkenlere göre farklılık göstermektedir, araştırma sonuçlarımız da gösteriyor ki tüm katılımcılar 'acı çekerek ölmekten' kaygı duymaktadır. Ölüm ile ilgili kaygı ve korkuların bilinmesi özellikle sağlık profesyonellerinin klinik uygulamalarında yol gösterici olacaktır.

Anahtar Kelimeler: Yaşlı, kaygı, huzurevi, ağrı, ölüm

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Beyond our differences regarding culture, race, nationality, sociocultural and socioeconomic characteristics, lifestyle, etc., death is the mutual point of all humanity. Considering variables such as social, demographic, educational, lifestyle-related and age-related variables, it is seen that death is the common denominator of all people. Such that, death, which means the end of life, is defined as the purpose of life in some sources, and actually, it complements life. For this reason, it is seen that death is not merely an end, but its status as completion of life, in the realest sense, is in agreement with its status as the purpose of life (1-3). Death, which cannot be directly experienced as we would not exist when it happens and means the complete and certain end of life, has been accepted as a part of life and a significant event within life in all beliefs and cultures in history. Different cultures, societies and disciplines have made very different definitions of death varying based also on the personality, age, religion and cultural status of the individual (4). The common points included in all these definitions are that the living organism loses its ability to rejuvenate itself, life ends by one or more vital organs' stoppage of working completely, and the inevitable nature of death. In the individual and social sense, death has never been understood as a simple event in any period (2, 5). This is because death is not just a biological phenomenon. It is a socio-cultural event with behaviors, ceremonies and beliefs that may change and evolve in time. This is why the attitudes and judgments of individuals towards death may change. Knowing about the attitudes and judgments of people, about actually what kind of death they want and behaving accordingly in the last period of life are among the frequently debased issues recently. By itself, death is a situation that creates anxiety for both the person and their relatives. Understanding the reason for this anxiety and knowing how to reduce it will spiritually relieve both the individual and their family. This is why studies have been conducted on people of all age groups on how they want to die and what kind of death would be a good death to determine what is important for people at the time of death. These studies have shown that, even though they are not much spoken of, people have a set of expectations and anxieties about their own death, and meeting these expectations is among the factors that reduce anxiety. As they are closer to the end of their expected lifespan, especially elderly individuals are associated more with the concept of death, and it is a reality that young deaths are less frequent than old deaths (6). The higher rate of chronic diseases in elderly individuals in comparison to the youth and the more complicated medical process due to chronic diseases increase the times of hospitalization and recovery. This creates difficulties for both the healthcare personnel and all professional groups working with elderly individuals and families, and it leads the thought of death to come to mind more frequently. Knowing about the death-related thoughts and anxiety levels of elderly individuals has significance in terms of professional groups working with the elderly and the relatives of the elderly knowing about how to shape their behaviors. Knowing about the fears of the elderly about death, therefore their expectations, will reduce the spiritual burden on the family and personnel and help them cope with this situation more easily. For this reason, in our study, in order to be able to guide individuals working with the elderly and families, we aimed to determine elderly individuals' death-related thoughts, anxiety-creating factors and the sociodemographic variables that affect these.

Material and Method

The design of the research was a cross-sectional study. The data were collected in the period of 01.01.2018-01.06.2018, and the entire population was accessed. The population of the study consisted of 96 elderly individuals who were staying at nursing homes in the province of Burdur in Turkey. The elderly without any sensory loss due to vision or hearing impairments and without a history of psychiatric health problems and mental problems were included in the study. A standardized Mini-Mental Examination Test/Standardized Mini–Mental State Examination (SMMSE) was used for mental status assessment. Written and verbal consents were obtained from the participants at the beginning of the study. The questionnaires were applied using the face-to-face interview technique by the researcher. 82 elderly individuals who had a Standardized Mini-Mental Examination Test score of 27 or higher and in accordance with the research criteria agreed to participate in the study were enrolled. This way, 85.4% of the entire population was included in the study.

Data Collection Instruments:

1. Sociodemographic Characteristics Data Form: This form was created by the authors to collect information by questions on the individuals' characteristics such as gender, age, marital status, number of children, family type, educational status, whether or not they thought of death frequently and chronic disease status.

2. Templer's Death Anxiety Scale: To determine the anxiety levels of the participants, the Death Anxiety Scale (DAS) developed by Templer (7) in 1970 consisting of 15 questions was utilized. The questions are answered as

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true or false. This scale, which consists of statements that express emotions that arise in relation to death such as anxiety, fear and horror, has been used in several studies, and it is still being used. In a study they conducted in 1989, Şenol translated DAS into Turkish and made validity and reliability calculations on the scale based on the face validity and test-retest reliability techniques (8). In their study, the reliability coefficient of DAS that was calculated by the test-retest method was found as 0.86. The total death anxiety score is calculated by assigning 1 point for the response of 'true' for each of the items 1 to 9 and 15 and 0 points otherwise, while assigning 1 point for the response of 'false' for each of the items 10 to 14 and 0 points otherwise. The maximum possible score in the scale is 15, while 0-4 points indicate "mild", 5-9 points indicate "moderate", 10-14 points indicate "severe" and 15 points indicate "panic-level" death anxiety (8).

3. Standardized Mini-Mental Test (SMMT)/ Standardised Mini-Mental State Examination (SMMSE): SMMSE was developed for the first time in 1975 by Folstein et al. (9) to grade cognitive disorders, while later, Molloy and Standish (10) created a standardized application guide to achieve standardization in practices, measure cognitive levels and eliminate differences, and thus, the test started to be used. The test that has been used by researchers in also epidemiological studies was tested for validity and reliability in Turkish by Güngen et al. (11), and its normative values were determined. The patient receives a maximum score of 30 and a minimum score 0 as/ at?? the end of the test. The critical score is 27 or 24. It is accepted that patients with scores under 27 have a cognitive disorder. In some cases, the cutoff point is accepted as 24 (11).

Ethical Aspects of the Study
Written permission was obtained from the Ethics Committee of Burdur Mehmet Akif Ersoy University (No: 2017/3-76) and the participants' verbal permission was obtained.

Statistical Analysis
The data obtained from the study were analyzed using "SPSS 20.0 for Windows", and arithmetic means, standard deviations for measurement values and percentages for counted values were calculated. The differences between the mean values were determined by independent-samples t-test for comparing 2 groups, one-way ANOVA for comparing 3 or more variables, and post-hoc Tukey's test for determining the source of significance. Cronbach's alpha for determining the consistency of the scale was used.

Results
Based on the demographic characteristics of the participants, 39.1% were women, their mean age was 77.3±2.04, 87.8% were divorced or widowed, 92.7% had children, 42.7% received education at primary school level, 90.2% had one or more chronic diseases, 85.4% thought about death more frequently, and the income of 85.3% was lower than their expenditures (Table 2).

Table 1. Elderly individuals' thoughts on death anxiety	
Answers for the Death Anxiety Scale	Agree n (%)
1. I am very afraid of dying.	16 (19.5)
2. I'm often troubled with the fact that time passes so fast.	54 (65.8)
3. I'm afraid when I think I will undergo surgery.	60 (73.1)
4. I often think about how short life really is.	56 (68.2)
5. Life after death worries me greatly.	68 (82.9)
6. I'm really afraid of having a heart attack.	40 (48.7)
7. Appearance of a corpse terrifies me.	59 (71.9)
8. Talking about outbreak of a world war scares me.	39 (47.5)
9. I'm afraid of dying in agony.	82 (100)
10. I'm not afraid of dying.	66 (80.4)
11. I feel there is nothing to fear for me in the future.	61 (74.3)
12. I don't have a particular fear of getting cancer.	43 (52.4)
13. I don't get nervous when people talk about death.	70 (85.3)
14. The thought of death never worries me.	74 (90.2)
15. The thought of death comes to my mind occasionally.	75 (91.4)

The death anxiety levels of the participants were examined, and their mean total score was found as 5.22 ± 1.05 (moderate anxiety). The Cronbach's alpha value of DAS was calculated as 0.778, which indicated good consistency. Among the participants, all were afraid of dying by suffering pain, 82.9% were afraid of life after death, 85.3% were not anxious about death-related talks, 90.2% did not feel anxious about the thought of death. Among the elderly individuals, 80.4% were not afraid of death at all, while the others were very much afraid of it (Table 1).

Table 2. Factors affecting death anxiety according to sociodemographic characteristics		Number-Percent n (%)	Death Anxiety Mean±SD
Age (77.3±2.04)	65-74*	31 (37.8)	5.76±2.69
	75-84	43 (52.4)	5.09±3.02
	85 ve üzeri*	8 (9.8)	3.56±3.16
	(p)		(0,001)
Gender	Male	50 (60.9)	4.09±1.16
	Female	32 (39.1)	6.27±2.13
	(p)		(0,001)
Income status	Less than expenses	70 (85.3)	5.22±1.09
	More or Equal to expenses	12 (14.7)	5.39±1.04
			(0.065)
Marital Status	Married*	4 (4.9)	6.01±1.21
	Single	6 (7.3)	5.02±1.01
	Divorced/ Widowed	72 (87.8)	5.36±1.45
	(p)		(0,005)
Child	Yes	76 (92.7)	5.59±2.18
	No	6 (7.3)	5.47±2.17
	(p)		(0.712)
Educational Status	Primary school	35 (42.7)	5.14±1.51
	Middle school	35 (42.7)	5.16±1.06
	High school	12 (14.6)	5.30±1.32
	(p)		(0.556)
Thinking about death frequently	No	12 (14,6)	4.89±1.13
	Yes	70 (85,4)	5.39±1.61
	(p)		(0,001)
Presence of chronic disease	Yes	74 (90.2)	5.23±1.11
	No	8 (9.8)	5.06±1.21
	(p)		(0.117)
Total		82 (100.0)	5.22±1.05
*: Statistical meaning			

Considering the factors that affected the death anxiety of the elderly individuals based on sociodemographic data, income status, the status of having children, education and presence of a chronic disease; were found to be unrelated to death anxiety. In addition to this, it was determined that death anxiety was higher among the elderly women (p=0.001); it decreased among the elderly participants as age increased (p=0.001); the elderly who were married experienced more anxiety (p=0.005), and thinking of death frequently increased anxiety (p=0.001) (Table 2).

Discussion

Death, which has become a whole with life, has been a phenomenon that constantly arises curiosity in individuals. For centuries, humanity has proposed ideas about the end of life and tried to make sense of it within its capacities. The fact that individuals are looking for answers to questions regarding their purpose of living also affects their activities towards making sense of death (12). Death is one of the issues that will continue to exist as life exists, therefore, it is one of the significant issues that shape our lives. Although a new one is added to the developments in the fields of science, technology and health every day, these have not eliminated the helplessness, loneliness and anxieties that people feel facing death. These anxieties are also seen frequently among the elderly. Although the period of old age is a part of our lives, being aware that one is getting closer to the end of life sometimes leads people to live this period with hopelessness and anxiety, and sometimes even receive medical care (13).

Several studies have shown that the variable that is the most related to death anxiety is age. There are many studies that have shown that death anxiety decreases in elderly individuals by age (14-16). Lester and Templer found that people in their mid-70s experienced less death anxiety in comparison to people in their mid-60s (17). We also divided individuals over the age of 65 into three different groups based on their ages, and we found that death anxiety significantly decreased as age increased (Table 1, p≤0.001). In this respect, our study was in agreement with many studies in the literature. However, in the meta-analysis of Fortner and Barry in 1999 which contained 49 studies, as opposed to the case in many variables, no significant relationship was found between age and death anxiety (18). We believe that this difference was caused by the fact that the individuals in our sample consisted of the elderly who were living at old people's homes and nursing homes.

As in our study, most studies on death anxiety and gender found that women experienced more death anxiety than men. While Madnawat and Kachhawa (19) determined that death anxiety increased in women by age, in their study on anxiety levels related to old age, Depaola et al. (20) could not find a significant difference based on genders, while they reported that women felt more death anxiety than men. In their study which examined clinical cases, Abdel-Khalek et al. (21) also found that women had higher scores on the death anxiety scale. In our study, we similarly found that death anxiety was higher among

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women than men, and this difference was statistically significant (Table 2, p≤0.001).

Some previous studies examined the relationship of death anxiety with educational status, income status and marital status, and conflicting results were obtained. Erdoğdu and Özkan (22) found that those in the lower and higher socioeconomic group and those who were married experienced more death anxiety, while educational status was not a factor that affected death anxiety. Öztürk et al. did not find a significant relationship between death anxiety in elderly individuals and marital status or educational status (23). Şenol found that death anxiety increased in the elderly as their education and income levels increased (8). In our study, while we found a statistically significant relationship between death anxiety and marital status (Table 2, p≤0.005), we did not find a significant relationship with educational status (p=0.556), having children (p=0.712) or income status (p=0.065) (Table 3).

In their study which used the Spanish form of Templer's Death Anxiety Scale, Moreno et al. (24) found that frequency of thoughts of death increased death anxiety in the elderly, while Erdoğdu and Özkan (22) also determined that the mean scale scores of individuals varied based on their frequencies of remembering death. Öztürk et al. (23) determined that the death anxiety levels of elderly individuals who stated that they thought about death frequently were higher, and for this, they also used Templer's Death Anxiety Scale that was utilized in our study. In agreement with the literature, we also found in our study that, as the frequency of thinking of death increased, death anxiety also increased by a statistically significant degree (Table 3, p≤0.001).

Fortner and Barry (18) determined in their meta-analysis on death anxiety in the elderly that death anxiety was higher in individuals with physical problems, while in another study with elderly individuals, Lucas (25) did not find a statistically significant relationship between death anxiety and the number of diagnosed and ongoing diseases (23). Our results showed that the status of having a chronic disease was not a determining factor in terms of death anxiety among elderly individuals (p=0.117).

Consequently, although the death-related anxieties of the elderly individuals who were receiving institutionalized care and living at institutions varied based on some sociodemographic variables, our results showed that all participants were afraid of 'dying by suffering pain'. A death that

fits human dignity and away from things one is anxious about is everyone's right. Studies to be conducted about the last period of life, as in our study, will reveal the issues that people are most afraid of or anxious about, and knowing about these will be guiding in the clinical practices of especially groups of healthcare professionals.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

Nutrition and Dietetics / Beslenme ve Diyetetik

Changing Behaviors of Adults for Ensuring the Food Hygiene During Covid-19 Outbreak: The Case of Turkey

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ABSTRACT

Objective: The aim of this study is to determine the behavior of individuals for buying, preparing, and cooking processes of the foods during the Covid-19 epidemic.

Materials and Methods: This study carried out with 999 adult individuals, 15.0% (n = 150) men and 85.0% (n = 849) women, aged 19-65. The questionnaire includes questions regarding the provision of food hygiene before and during the Covid-19 outbreak.

Results: While the preference rate for markets' take-out services increased in the Covid-19 epidemic process (22.8% before Covid-19; 55.7% in the Covid-19 outbreak), there was a decrease in the proportion of those who preferred neighborhood farm markets (66.8% before Covid-19; 27.5% during Covid-19 outbreak) (p <0.01). The proportion of those who chose to buy packaged bread and fruit during the epidemic also increased (p = 0.001).

Conclusion: No scientific data are available on the consumption of nutrients with a potentially contaminated risk and the transmission of the virus. However, it is believed that the concerns about carrying this virus with food can be prevented by the consumers more carefully applying the routine hygiene rules.

Keywords: Behavior, COVID-19, food hygiene, SARS-CoV-2

Yetişkinlerin Covid-19 Salgını Sürecinde Besinlerin Hijyeninin Sağlanması Konusunda Değişen Davranışları: Türkiye Örneği

ÖZET

Amaç: Bu araştırmanın amacı bireylerin Covid-19 salgını sürecinde besinlerin satın alınması, hazırlanması ve pişirilmesi aşamalarındaki davranışlarını saptamaktır.

Gereç ve Yöntem: Bu çalışma, 19-65 yaş arası %15,0'i (n=150) erkek, %85,0'i (n=849) kadın olmak üzere 999 yetişkin bireyler ile yürütülmüştür.

Bulgular: Ankette demografik veriler ile Covid-19 salgını öncesi ve sırası besin hijyeninin sağlanmasına yönelik davranışların sorgulandığı sorular bulunmaktadır. Covid-19 salgını sürecinde marketlerin eve servis hizmetlerinin tercih oranı artış gösterirken (Covid-19 öncesi %22,8; Covid-19 sürecinde %55,7); semt pazarlarını tercih edenlerin oranında azalma saptanmıştır (Covid-19 öncesi %66,8; Covid-19 sürecinde %27,5) (p<0,01). Salgın sürecinde ekmek ile meyve sebzeyi paketli almayı tercih edenlerin oranını da artış göstermiştir (ekmek için salgın öncesi %48,8; salgın sürecinde %85,6; sebze ve meyve için salgın öncesi %24,3, salgın sürecinde %77,5) (p=0,001; p<0,01).

Sonuç: Olası bulaşan riski olan besinlerin tüketimi ile virüsün bulaştığına dair bugüne kadar bilimsel bir veri mevcut değildir. Ancak tüketicilerin rutin hijyen kurallarını her zamankinden daha dikkatle uygulamasıyla bu virüsün gıdalarla taşınması konusundaki endişelerin önüne geçilebileceği düşünülmektedir.

Anahtar Kelimeler: besin hijyeni, covid-19, davranış, SARS-CoV-2

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The new type of coronavirus (Covid-19) is a highly contagious and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is appeared in Wuhan, China and spread out to the world (1). It is stated that the main route of transmission is largely from person to person through inhalation (2). Covid-19, although there is no published evidence that contamination from an infected person's cough or sneeze, or contact with the food or food packaging he touches can cause the disease, the virus that causes Covid-19 can survive on the surfaces for a certain period of time (3). Determining all the points in contact with food and food packages and ensuring the hygiene of contaminated foods will be important in preventing the transmission of the virus, causing Covid-19 and reducing the concerns about foodborne contamination.

In this context, providing personal hygiene during the food contact process and good hygiene practices for food safety in the kitchen will reduce the risk for all contaminants (4). The aim of this study is to determine the behavior of adult individuals about the factors that may pose a risk for possible Covid-19 contaminants from food or food packaging.

Material and Methods

Study Population and Design

This study was conducted with adult individuals aged 19-65 who agreed to participate in the study between 20 March and 20 April 2020. The data collection tool is a questions developed by the researchers. Before develop the questions, self-reported consumer purchasing and food handling behaviors during the beginning phase of the COVID-19 pandemic were asked to students who educated at Acibadem University Nutrition and Dietetic Department. A final questions were created by evaluating these data that students noted. The final questions were transferred to the electronic environment via the "Google Survey" and the survey data were collected by the haphazard sampling method. 1086 individuals filled out the questions created in the electronic environment; 87 of these individuals were excluded from the study because they answered the questions incompletely. Thus, the study was completed with 999 people.

Instrumentations

At the beginning of the questions, there is a text stating that the information of the person carrying out the research is based on volunteering, and the information of the individual who filled the questionnaire will be kept in secret. The fact that individuals read and approve the form means that they agree to participate in the study.

The developed questions consists of two sections. These sections are demographic Information (including their age, gender, and educational background) and questions for the asssessment of behaviors for providing food hygiene before and during the covid-19 outbreak (such as individuals ordering food from outside, preferring street markets, whether they prefer bread with packages or not)

Results

Table 1 summarizes the demographic characteristics of the individuals participating in the research. The study was carried out with a total of 999 cases, 15.0% (n = 150) male and 85.0% (n = 849) female. The ages of the cases ranged between 16 and 65, with an average of 32.04 ± 11.99 years (Table 1).

Table 1: Distribution of Demographic Features			
		Min-Max (Median)	Mean±Sd
Age (Years)		16-65 (27)	32.04±11.99
		n	%
Gender	Male	150	15.0
	Female	849	85.0
Maritial Status	Married	448	44.8
	Single	551	55.2
Education Level	Elementory School and Below	44	4.4
	High School	255	25.5
	University	600	60.1
	Master's Degree	100	10.0
Occupation	Not Working/House Wife	226	22.7
	Working (Worker/ Self-Employement/ Civil Servant)	400	40
	Student	293	29.3
	Retired	80	8.0

Table 2 shows the behaviors of eating habits acquired during the Covid-19 outbreak process. When it is asked about the meal preferences of individuals who continue to work during the Covid-19 outbreak (n = 219); 30.6% (n = 67) of the cases stated that they ate at the cafeteria at work and 57.5% (n = 126) were taking meals from home (Table 2).

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Table 2: Distribution of Eating Habits During the Covid-19 Outbreak Process			
		n	%
The preference of eaten outside of the individuals who continue to work during this period (n = 219)	Eating in the launch hall at work	67	30.6
	Taking food from home	126	57.5
	Ordering take out	18	8.2
	Buying from a bakery etc.	8	3.7
Status of Changing habits of food purchase, storage, and cooking in the epidemic process	Yes	868	86.9
	No	131	13.1
Status of thinking about continuing acquired habits after the outbreak	Yes	859	86.0
	No	140	14.0

Table 3: Evaluation of Behaviors of Food Purchase Before and During Covid-19 Outbreak					[a]p
	Before the Covid-19 Outbreak		During the Covid-19 Outbreak		
	n	%	n	%	
I prefer to order ready meals from outside.	325	32.5	18	1.8	0.001**
If I have to order ready meals from the outside, I prefer the food I order to be cooked meals.	876	87.7	912	91.3	0.009**
I prefer street markets.	667	66.8	275	27.5	0.001**
I prefer the take-out services of the markets first.	228	22.8	556	55.7	0.001**
I wear gloves when I am shopping in the market.	43	4.3	773	77.4	0.001**
I pay attention to that the fruits and vegetables are packed.	243	24.3	774	77.5	0.001**
I pay attention to prefer fruits that can be peeled.	488	48.8	818	81.9	0.001**
I would not prefer to buy raw (such as rocket, lettuce) vegetables.	55	5.5	155	15.5	0.001**
I prefer frozen vegetables first.	69	6.9	224	22.4	0.001**
I prefer to get my bread packed.	493	49.3	855	85.6	0.001**
I prefer to buy packaged foods such as meat, chicken, and fish.	670	67.1	829	83.0	0.001**
[a]Pearson Chi-Square Test *p<0.05 **p<0.01					

Table 3 shows the behavior of food buying before and during the Covid-19 outbreak. While 32.5% of the cases prefer to order ready meals from outside before the outbreak, this rate fell to 1.8% during the outbreak (p = 0.001; p <0.01). While those who prefer street markets before the outbreak are 66.8%; This rate has decreased to 27.5% during the epidemic outbreak (p = 0.001; p <0.01). While 24.3% (n = 243) of the cases were careful to be packed fruits and vegetables before the outbreak; this rate increased to 77.5% (n = 774) during the outbreak (p = 0.001; p <0.01).

Table 4 describes the behaviors regarding food preparation and cooking before and during the Covid-19 outbreak. While 66.5% of the cases came home from the market, washing my hands with soapy water for at least 20 seconds before the outbreak; this rate increased to 99.3% during the outbreak (p = 0.001; p <0.01).

Table 5 shows the behavioral changes shown during the outbreak according to the descriptive features. There was a statistically significant difference between the behavior change rates by gender (p = 0.040; p <0.05), and the rate of change in women was higher than that of men. Behavior change rates according to marital status, do not differ statistically (p>0.05).

Discussion

Although there is no up-to-date data on contamination of Covid-19 with food consumption (5), it has been determined that there are changes in individuals' food buying habits in the Covid-19 outbreak. An increase in the food and beverage sector in Turkey is observed due to reasons such as urbanization, rising income levels, an increase in the number of working women, and the young population (6). In this study 22.8% of individuals prefer the home service of the markets before the Covid-19 outbreak, this rate increased to 55.7% in the outbreak (p<0.01) (Table 3).

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Table 4: Assessment of Behaviors Regarding Food Preparation and Cooking Before and During the Covid-19 Outbreak					
	Before the Covid-19 Outbreak		During the Covid-19 Outbreak		[a]p
	n	%	n	%	
When I come home from the market, I wash my hands with soap for at least 20 seconds.	664	66.5	992	99.3	0.001**
I keep the grocery bags that I put the food which I bought from the market.	758	75.9	294	29.4	0.001**
I put the food that I brought home from the supermarket on the balcony / in front of the door for a while and then take it home.	155	15.5	772	77.3	0.001**
I wipe the package of packaged food/drinks I bought with soap or diluted bleach.	153	15.3	731	73.2	0.001**
I clean the bottles of the carboy or other plastic bottles of the water I ordered with soap or bleach diluted with water.	251	25.1	772	77.3	0.001**
I take the vegetables/fruits out of their bags and put them in the fridge.	713	71.4	760	76.1	0.017*
I leave the vegetables to be consumed raw in water with vinegar.	758	75.9	885	188.6	0.001**
I wash the vegetables to be consumed raw with soapy water.	62	6.2	186	18.6	0.001**
I put the eggs in the fridge, after washing them.	159	15.9	324	32.4	0.001**
I cook more to make sure that food like meat, chicken, fish is cooked well.	805	80.6	882	88.3	0.001**
[a]Pearson Chi-Square Test	*p<0.05		**p<0.01		

Table 5: Assessment of Behavioral Change Rates in the Outbreak Period According to Descriptive Features					
			Behavior change rate is shown during Covid-19 outbreak (%)		p
		n	Min-Max. (Median)	Mean±Sd	
Age (year)	r	999	-0.058		
	p		0.069		
Gender	Male	150	0-85.7 (33.3)	30.98±21.64	[b]0.040*
	Female	849	0-90.5 (33.3)	34.86±17.99	
Marital Status	Married	448	0-76.2 (33.3)	33.17±18.26	[b]0.090
	Single	551	0-90.5 (38.1)	35.18±18.87	
Education Status	Elementory School and below	44	0-71.4 (31)	29.55±20.06	[c]0.059
	High School	255	0-90.5 (33.3)	32.53±19.01	
	University	600	0-85.7 (38.1)	34.87±18.36	
	Master's Degree	100	0-81 (38.1)	37.33±18.02	
[r]:Pearson Correlation C	[b]Student t Test		[c]Oneway ANOVA Test		*p<0.05

Food shopping from the internet is not common in Turkey (7). In this study, it is estimated that the reason for increasing markets' take-out services and decreasing online food order in the outbreak may be the desire to reduce the contact of people with the food in the process of food purchase. Neighbour markets are shopping organizations that are established on certain days and places, which allow families to buy their needs (8). While those who prefer street markets are 66.8% before the outbreak, dropped to 27.5% during the outbreak (p <0.01).

Stages such as food packaging, transportation, and storage significantly increase the risk of contamination, and the human factor is also considered as environmental contaminants (9). Therefore, the possible SARS-CoV-2 infected individual involved in the food supply chain may be a risk factor for the transmission of the virus to the surfaces. In this direction, 77.5% of the individuals participating in the research pay attention to the fact that fruits and vegetables should be packed during the Covid-19 outbreak. This rate was found to be 24.3% before the outbreak. It was

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observed that the fruit and vegetable have started to be sold in bags in many supermarkets and neighboring markets in Turkey. Similarly, during the outbreak, bread was preferred to be packaged more (p <0.01) (Table 3).

According to the guidelines published by the World Health Organization on the rational use of personal protective equipment during the Covid-19 outbreak, individuals who do not have respiratory symptoms in public areas do not need to use personal protective equipment (10). It is recommended to wipe the frequently contacted surfaces such as grocery baskets and cards with disinfectant wipes if possible, and use hand disinfectant after payment at the cash desk (5). 77.4% of the individuals participating in the research use gloves while shopping in the Covid-19 outbreak period (Table 3). If the individual prefers to use gloves, the glove removal steps (11) developed to prevent the possible pathogens on the surface of the gloves from being contaminated by the individual should be carefully followed.

Studies indicate that hand washing by preventing contamination by providing suitable conditions can reduce the risk of upper respiratory tract infection by 6% and 44% (12,13). It is. found that hand rubbing with water and soap or alcohol-based products reduced Influenza A virus on the hand (14). In this study 99.3% of the participants wash their hands with soap for at least 20 seconds when they came home from the market during the outbreak, and this increase was found statistically significant (p<0.01) (Table 4).

Surface cleaning is an important factor in ensuring hygiene in the kitchen. While surface cleaning with water and soap ensures the reduction of microbial load, disinfectants cause the death of pathogens on the surface (15). For disinfection, bleach solution containing sodium hypochlorite in 0.1% dilution can be used, or if bleach solution containing 5.25-6.00% sodium hypochlorite will be used, it can be diluted with 1/50 of water. Alcohol can also be used for surfaces where bleach is not suitable. (16). Apart from that, there are also disinfectants accepted by the Environmental Protection Agency for use against the virus that causes Covid-19 in America (17). In this study, we questioned the wiping of the package of packaged food/beverage purchased before and during the Covid-19 outbreak with soapy water or diluted bleach available at home. 15.3% of the individuals before the outbreak and 73.2% after the outbreak answered this question as "yes" (Table 4). Washing vegetables and fruits with water before

consumption is necessary to remove pathogens. The surface can be washed by using a small amount of soap and water and a vegetable brush because the coronavirus is an enveloped virus and surrounded by an oily membrane (18). While those who kept the vegetables that can be consumed raw kept in water with vinegar were 88.6% during the outbreak (p <0.01). Organic acids are defined as powerful antimicrobial agents due to reasons such as lowering the pH of the environment, impairing membrane permeability, and anion accumulation (19). In addition to acetic acid in the vinegar, pH value and phenolic compounds may cause an antibacterial effect (20). In a study the effects of home-made compounds on pathogens were investigated. According to the results of the research, when the effects of all tested pathogens from highest to lowest are evaluated; The most effective compounds are determined as 0.0314% sodium hypochlorite, 3% hydrogen peroxide, undiluted vinegar, and 5% acetic acid, 5% citric acid and baking powder (50% sodium bicarbonate) respectively (21). However, many studies in the literature are on the antibacterial effect of vinegar (20-22).

Microbial safety of the egg is required. Since the natural protective layer on the shell will disappear with washing, the microorganism load may increase as the entrance of the microorganisms to the egg can be easier to (23). In this study, 15.9% of individuals before the Covid-19 outbreak; 32.4% of them put the eggs they bought in the refrigerator after washing during the epidemic of Covid-19, and this increase is statistically significant (p <0.01). Another factor in ensuring food hygiene is the cooking temperature of foods such as meat, chicken, and fish. Coronaviruses are not heat-resistant, meaning that they are sensitive to normal cooking temperatures (70°C) (24). In this study, the rate of those who cooked foods more increased compared to the pre-epidemic period (p<0.01) (Table 4).

The fact that the data could not be taken face-to-face and that people of different socio-cultural levels could not be reached due to the online survey is the limitation of the research. Since the use of masks in public transportation and in public places is mandatory in our country, the use of masks has not been questioned in the scope of the research. On the other hand, basic rules such as the use of masks, attention to social distance protection, and physical contact in the markets could be questioned.

Conclusion

Our research is the first study showing the changing behavior regarding hygiene in food during the Covid-19 outbreak in Turkey. The individuals participating in the research state that their habits have changed during the epidemic and that these habits will continue in the future. However, we think that the behavior of individuals may differ at different stages of the outbreak. For this reason, we foresee that there may be a difference in the attitudes and behaviors of individuals in future studies to be conducted for this purpose.

Declarations

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Conflicts of interest: None of the authors has any conflict of interest to declare.

Ethics approval: The protocol of the study was approved by the Ethical Committee of the Acibadem Mehmet Aydinlar University with the number of 202-05/31.

Authors' contributions: Duygu Sağlam, Gözde Arıtıcı Çolak and Murat Baş contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

Nutrition and Dietetics / Beslenme ve Diyetetik

The Relationship Between Mediterranean Diet Adherence and Mindful Eating Among Individuals With High Education Level

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ABSTRACT

Objectives: The aim of this study was to evaluate the relationship between the adherence to the Mediterranean diet and mindful eating of individuals with a high level of education.

Study design: This study conducted between November 2019 and March 2020 with 188 academicians participation. General information form, Mediterranean diet adherence scale (MEDAS) and mindful eating scale (MEQ-30) were used in the data collection. The data were collected via face-to-face interview method by the researcher.

Results: The mean age of the participants was 33.95 ± 11.97 years (range: 22-65 years). According to the findings, majority of the participants (56.4%) showed low adherence to the Mediterranean diet and 73.9% of them had higher mindful eating. Besides, although the difference were not significant, participants with high adherence to the Mediterranean diet had higher MEQ-30 scores and higher BMI (p>0.05). The MEDAS score has positively correlated with the dimensions of the MEQ. As the disinhibition, the emotional eating, the control of eating, the mindfulness and the interference increased of the individual, the adherence to the Mediterranean diet increased simultaneously (p<0.05).

Conclusion: Higher education level may be a predictive factor of mindful eating in company with compliance to the Mediterranean diet. These two eating attitudes may have beneficial effects on BMI and eating patterns of an individual which would cause weight loss and better health status.

Keywords: Mediterranean Diet, Mindfulness, Eating behavior

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Yüksek Eğitim Seviyesine Sahip Bireylerde Yeme Farkındalığı ile Akdeniz Diyetine Uyum Arasındaki Ilişki

ÖZET

Amaç: Çalışma yüksek eğitim düzeyine sahip bireylerin akdeniz diyetine bağlılığı ve yeme farkındalığı ile ilişkisini değerlendirmek amacıyla yapılmıştır.

Çalışma Planı: Çalışma Kasım 2019-Mart 2020 tarihleri arasında 188 akademisyen katılımıyla gerçekleştirilmiştir. Veri toplama formunda genel bilgiler, Akdeniz diyetine bağlılık ölçeği (MEDAS) ve yeme farkındalığı ölçeği (YFÖ-30) kullanılmıştır. Veriler araştırmacı tarafından yüz yüze görüşme yöntemi ile toplanmıştır.

Bulgular: Katılımcıların yaş ortalaması 33,95 ± 11,97' dir (22-65 yaş). Bulgulara göre katılımcıların büyük bir çoğunluğu (%56.4) Akdeniz diyetine düşük bağlılık gösteriyordu ve %73,9'u daha yüksek yeme farkındalığı skoruna sahipti. Ayrıca fark istatistiksel anlamlı olmasa da, Akdeniz diyetine bağlılığı yüksek olan bireyler daha yüksek YFÖ-30 skoru ve daha yüksek BKİ'ne sahipti (p>0.05). Bireylerin MEDAS skorunun YFÖ'nün alt boyutları ile pozitif korelasyonu vardı. Bireylerde disinhibisyon, duygusal beslenme, yeme kontrolü, farkındalık ve interferans arttıkça Akdeniz diyetine uyum da artıyordu (p<0.05).

Sonuç: Yüksek eğitim düzeyinin yeme farkındalığı ile birlikte Akdeniz diyetine uyumun bir öncü faktörü olabileceği oldukça açıktır. Bu iki yeme tutumu bireyin BKİ ve yeme alışkanlıklarını olumlu etkileyerek sonuçta kilo kaybı ve daha iyi bir sağlık düzeyi sağlamada etkili olabilir.

Anahtar Kelimeler: Akdeniz Diyeti, Farkındalık, Yeme Davranışı

The Mediterranean diet model which is not only a diet but also a lifestyle, handles food in all aspects, has come to the fore as the healthiest and most sustainable diet recently. The health effects of the Mediterranean diet first emerged and defined for the first time in the late 1950s with a seven-country study by Angel Keys in which the relationship between heart diseases and diet was examined (1). In a conference held in Italy in 2009, it was considered as a sustainable diet due to its environmental, nutritional, economic and sociocultural dimension (2). It is a kind of diet that recommends consumption of high amounts of fruits, vegetables, legumes, fish and seafood, olive oil as the major oil source, moderate consumption of milk and wine, and low red meat consumption (3). People who consciously follow a more health-oriented diet are considered having higher cultural, social and economic awareness (4).

Mindfulness practices, which date back to ancient times, are used in many areas for different purposes nowadays (5). When the mindfulness level of the individual reaches a level that will affect the attitudes, mindful eating behaviors manifest itself, which focus on how and why the eating behavior occurs rather than what is eaten (6,7). In other words, mindful eating is a way to focus on the food to be consumed without being affected by environmental factors and prejudices, being aware of the effects of emotions and thoughts by internalizing the concepts of physical hunger-satiety (6,8).

The attitudes of individuals towards health are associated with food choices and shaping their eating patterns. It is seen that those who make health-oriented food preferences tend to follow a more balanced diet instead of junk food, energy-dense foods and large portions. There are many factors that affect consumers' food choices including genetic, biological, socioeconomic, environmental and psychological factors as well as cultural habits (9). Particularly socioeconomic factors (i.e. education and income) play a major role in a sustainable and healthy diet approach as more educated people tend to have a more balanced and healthy eating pattern due to higher levels of mindfulness and knowledge about foods (10). Knowing the role of the food in preventing chronic diseases brings along a healthier eating pattern and pro-environmental attitude. For instance, income and education level have a significant positive effect on adherence to the plant-based diet and sustainable Mediterranean diet (10,11). Contrary, a decrease in education and income levels has a negative impact on food choices. Individuals with a low level of education have limited knowledge and lower awareness of food related issues and have also been reported to have difficulty following food recommendations (10,12).

Although there are many studies investigated the relationship between the education level of individuals and adherence to the Mediterranean diet, the effects of the levels of mindfulness did not examine before. Yet in this study it was aimed to evaluate the relationship between the adherence to the Mediterranean diet and mindful eating among high educated participants.

MATERIAL AND METHODS

Study participants/sample

The research was conducted between November 2019-March 2020 with 188 academicians working at Yeditepe University. Those without chronic disease and completed the informed consent form were included. While sample size calculated as 302 with 95% confidence interval, the study was terminated with 188 people by reaching 62% of the desired sample because formal education was interrupted due to COVID-19.

Procedure of investigation

The data collected by the researcher through face-to-face interviews. Participants' socioeconomic characteristics (age, gender, marital status, educational status, and smoking), anthropometric characteristics (self-reported weight and height), physical activity status were questioned. The physical activity level of the individuals was determined by questioning the level of adaptation of participants to 150 minutes of moderate-intensity activity per week recommended by the World Health Organization (WHO) (13). BMI was calculated by dividing the weight in kilograms to height in meters (kg/m²) and classified according to WHO criteria (14). One of the two validated scales was used in this study was the Mediterranean Diet Adherence Scale which was developed by Martínez-González MÁ, Corella D, Salas-salvadó J, et al. in 2012 (15) and validated in Turkish by Pehlivanoğlu, Balcıoğlu and Ünlüoğlu (16). A total score of ≥7 indicates an acceptable adherence, whereas a score of ≥9 indicates high adherence to the Mediterranean diet (16). Secondly, the mindful eating questionnaire which was developed by Framson C, Kristal AR, Schenk JM, et al. in 2009 (17) and validated in Turkish were obtained by Köse, Tayfur, Birincioğlu et al. (6) was used. In Turkish version, a new scale consisting of 30 questions was created and divided into 7 sub-factors. The higher score indicates higher level of mindful eating (6, 18).

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Statistical analysis

Statistical Package for the Social Sciences software (SPSS) 21 program was used to analyze the data. Continuous variables were represented with mean (Ẋ), standard deviation (SD), minimum-maximum (min-max) and qualitative variables with frequency (n) and percentages (%). The normality assumption was examined by Kolmogorov-Smirnov test. Chi-square test was used to describe the relationship between two qualitative variables and the Mann-Whitney Test was used to determine whether the distributions of two independent variables were statistically significant. Chronbach's alpha was calculated to reveal the relationship between variables. The confidence interval for all analyzes were 95% and the results were considered statistically significant for p <0.05.

Results

A total of 188 academicians with a mean age of 33.95 ± 11.97 years (min: 22 yrs, max: 65 yrs), comprised 125 women (66.5%) and 63 men (33.5%). As shown in Table 1, all participants were of high education level. Considering the MEDAS scores, while a majority of women showed an acceptable level of adherence, men showed higher adherence than women, but the difference was insignificant (p>0.05). Women displayed insignificantly higher awareness about mindfulness than men (p>0.05). According to the classification of BMI, overweight and obesity rates were significantly higher among men participants (p<0.001).

Table 1. Distribution of some demographic and nutritional characteristics of the participants.		Overall		Women		Men		
		n	%	n	%	n	%	
Education status	Master Degree	97	51.6	65	52	32	50.8	
	PhD.	91	48.4	60	48	31	49.2	
Marital Status	Married	64	34	41	32.8	23	36.5	
	Single	124	66	84	67.2	40	63.5	
Physical Activity	<150 min/week	133	70.7	97	77.6	36	57.1	
	≥150 min/week	55	29.3	28	22.4	27	42.9	
Smoking	Yes	65	34.6	43	34.4	22	34.9	
	No	123	65.4	82	65.5	41	65.1	
Eating Status	Alone	54	28.7	34	27.2	20	31.7	
	Family/friends	134	71.3	91	72.8	43	68.3	
Following a diet program before	Yes	109	58	52	41.6	27	42.9	
	No	79	42	73	58.4	36	57.1	
								Significance p*
Adherence to Mediterranean Diet Score	Low	106	56.4	70	56	36	57.1	0.158
	Acceptable	57	30.3	42	33.6	15	23.8	
	High	25	13.3	13	10.4	12	19	
Awareness of mindful eating	Yes	96	51.1	68	54.4	28	44.4	0.197
	No	92	48.9	57	45.6	35	55.6	
BMI	Underweight	18	9.6	16	12.8	2	3.2	0.000[a]
	Normal	115	61.2	92	73.6	23	36.5	
	Overweight	41	21.8	14	11.2	27	42.9	
	Obese	14	7.4	3	2.4	11	17.5	

* p value calculated via Chi-square test
[a] p<0.001

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Table 2. BMI and MEQ-30 values regarding adherence to the Mediterranean diet							
	Low Adherence		Acceptable Adherence		High Adherence		Sig. p*
	Ẋ ±SD	Min.-Max.	Ẋ ±SD	Min.-Max.	Ẋ ±SD	Min.-Max.	
BMI	23.45±3.73	17.68-33	22.70±3.52	17-31.50	24.02±4.30	17.92-33	0.398
MEQ-30	3.27±0.53	2.40-5	3.29±0.54	1.80-4.20	3.44±0.59	2.20-5	0.422
* p value calculated via Mann-Whitney-U test							

Table 3. Relationship Between Participants' BMI, MEDAS and MEQ-30											
		Age	BMI	MEQ-30	Disinhibition	Emotional Eating	Eating Control	Focusing	Eating Discipline	Mindfulness	Interference
MEDAS	r	0.224	0.11	0.125	0.312	0.241	0.202	-0.0708	0.092	0.320	0.180
	p	0.002[b]	0.885	0.087	0.000[a]	0.001[a]	0.006[b]	0.285	0.207	0.000[a]	0.013[c]
[a] p <0.001, [b] p <0.01, [c] p <0.05											

At Table 2 shows the BMI and MEQ-30 values of the participants according to their adherence to the Mediterranean diet. Participants with high adherence to the Mediterranean diet (score≥9) unexpectedly found to have higher BMI values however, this difference was statistically insignificant (p>0.05). Besides, the MEQ-30 scores of those who showed high adherence to the Mediterranean diet were found to be higher, while these results were not significant (p>0.05).

Table 3 shows the MEQ-30 and MEDAS scores according to the BMI classification of the participants. Although no statistical significance was observed (p=0.082), the MEQ-30 scores of overweight and individuals with obesity were found to be lower (3.17±0.57 and 3.15±0.50. respectively), compared to normal and underweight individuals (3.33±0.52 and 3.50±0.59, respectively).

When MEDAS scores were examined according to the BMI classification, while the highest mean score was observed in underweight (6.50±1.79) and overweight (6.46±2.12) individuals, individuals with obesity displayed lowest adherence with a mean of 6.21±2.77. There was no statistically significant difference between the MEDAS and BMI classification (p>0.05).

The adherence to the Mediterranean diet of individuals were not correlated neither BMI nor mindfulness (p>0.05), displayed in Table 3. However, individuals found to be more compliant with the Mediterranean diet as they get older (p<0.05). Besides, the MEDAS score was positively correlated with the 5 dimensions of the MEQ. As the subscales of disinhibition, the emotional eating, the control of eating, the mindfulness and the interference levels increase of an individual, the adherence with the Mediterranean diet increases simultaneously (p<0.05).

Discussion

High education accompanied by socioeconomic status are major factors determining the eating habits of individuals, as those with low socioeconomic level tend to consume less healthy foods (19,20). Individuals with a high level of education know the role of foods on diseases and follow dietary recommendations more easily (19), and reported to be highly adhered to Mediterranean diet (21). Another study also reported that those had lowest education level tend to consume higher amount of cereals and pulses, but lower amounts of vegetables, olive oils, milk and milk products (22). That is why it was important to select individuals with a high level of education as the target population for the study.

Even though this study did not aim to determine the contribution of demographic factors, we observed similar tendency with the literature in terms of the age and MEDAS score (21,23,24), as older age reported to be a predictive factor on adherence (25), however a study reported no association (11). Regarding of sex, although there was no significant difference, men found to be displayed higher adherence than women in accordance with the literature findings (11,22,23). Besides, there are contrary results which indicated women more compliant with the Mediterranean diet (11).

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Although The Mediterranean diet is associated with a reduction in risk of several diseases and conditions just as the BMI, this study found that there was no relationship between these two parameters in line with the literature (26), and those with higher compliance had higher BMI, similar to another study (27). In a cross-sectional study, which included only women, a decrease in the prevalence of overweight and obesity was observed as adherence to the Mediterranean diet increased (21). Different results between studies may be due to the differences in population groups and the self-reported height-weight measurements of the participants. Moreover, physical activity level also reported as an associated determinant with the moderate or high adherence to the Mediterranean diet (21). At the same time, failure to take food consumption record of individuals may have caused the MEDAS scale to be incorrectly filled. Apart from adherence to the Mediterranean diet, similar to our findings, a negative relationship was indicated between BMI and mindful eating score by a study (5) and it was indicated that mindful eating may be a possible effective approach to lower the BMI (5,28,29). The concepts of mindful eating and Mediterranean diet model coincide with each other, as both refer to eating behavior should be consciously to satisfy body and psychological requirements concomitantly (28). Moreover, in accordance with Ayyıldız Atak (30) study, we observed the MEDAS score of the individuals were significantly and positively associated with disinhibition, emotional eating, eating control, mindfulness, interference. This study hypothesized that those with higher education level would have higher mindful eating attitudes, and concomitantly would be more compliant with the Mediterranean diet. Even though we could not determine the exact significant association, it would not be wrong to deduce that those with higher MEQ scores tend to show higher adherence to the Mediterranean diet. Besides this study results reveal a positive relationship between MEDAS score and sub-factors of MEQ including disinhibition, emotional eating, eating control, mindfulness and interference.

Conclusion

This study aimed to determine the possible association between adherence to the Mediterranean diet and mindful eating practices among high educated adult population, in this respect it presents a new perspective to the literature. It is obvious that higher education level may be a predictive factor of mindful eating in company with compliance to the Mediterranean diet. As mindful eating practices of an individual increase, the tendency to comply with the Mediterranean diet would increase simultaneously. These two eating attitudes may have beneficial effects on BMI and eating patterns of an individual which would cause weight loss and better health status. As a conclusion, it is possible to gain healthier eating habits by increasing the education level of individuals. It is recommended for future studies to evaluate the change in adherence to the Mediterranean diet after education sessions in order to increase awareness of mindful eating of individuals.

Declarations

Conflict of Interest/competing interest: The authors declare that they have no conflict of interests.

Availability of Data And Materials: 'Not applicable'.

Ethics Approval: This study was performed with the ethical approval of Yeditepe University Clinical Researches Ethics Committee, with date 28.01.2021 and number 2021/01-44.

Authors' Contributions: First author participated in the conception and design of the study, collection and acquisition of the data, performed statistical analysis also she drafted and revised the manuscript. Second author performed as the coordinator of the study and also performed statistical analysis, contributed to interpretation of the results, participated in the acquisition of data and revised the manuscript. All authors accept full responsibility for all aspects of the research.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

Determining the Relation between Nursing Students' Problem-Solving Skills and Attitudes toward Computer Use in Health Care: A Comparative Study

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ABSTRACT

Aim: This study aimed to determine the relation between nursing students' problem-solving skills and attitudes toward computer use in health care.

Methods: This was a cross-sectional and correlational study conducted between December 3 and 7, 2018 in the nursing department of the faculty of health sciences of a university in the northeastern region of Turkey. The study sample comprised 587 (73%) of nursing students. Data were collected using a descriptive characteristics form, the Problem-Solving Inventory and the Pretest for Attitudes Toward Computers in Healthcare scale. Scale total scores and subscale and subgroup mean scores were calculated. Descriptive statistics were presented as numbers and percentages. Data were analyzed using the Mann–Whitney U, Kruskal–Wallis H, and Spearman correlation tests.

Results: The mean age of participants was 20.66±1.79 years. Of the participants, 61.0% were women. They had mean scores of 93.41±18.73 and 8.36±9.58 on the Problem-Solving Inventory and the Pretest for Attitudes Toward Computers in Healthcare scale, respectively. The Problem-Solving Inventory was weakly and negatively related with the Pretest for Attitudes Toward Computers in Healthcare scale (p = 0.000, r = -0.363).

Conclusion: This study found that nursing students who had low scores on the Problem-Solving Inventory, that is, stronger problem-solving skills, demonstrated more positive attitudes toward computer use in health care. Based on these results, the following recommendations were made. Students' problem-solving skills should be evaluated at the beginning of each academic year. During clinical internships, mentor nurses should introduce students to nursing informatics.

Keywords: Attitude, computers, health care, nursing students, problem solving

Hemşirelik Öğrencilerinin Problem Çözme Becerileri ile Sağlık Bakımında Bilgisayar Kullanımına Yönelik Tutumları Arasındaki İlişkinin Belirlenmesi: Karşılaştırmalı Bir Çalışma

ÖZET

Amaç: Bu çalışma, hemşirelik öğrencilerinin problem çözme becerileri ile sağlık hizmetlerinde bilgisayar kullanımına yönelik tutumları arasındaki ilişkiyi belirlemek amacıyla yapılmıştır.

Yöntemler:. Bu çalışma, Türkiye'nin kuzeydoğu bölgesindeki bir üniversitenin sağlık bilimleri fakültesi hemşirelik bölümünde 3-7 Aralık 2018 tarihleri arasında gerçekleştirilmiş, kesitsel ve ilişki arayıcı bir çalışmadır. Araştırmanın örneklemini, hemşirelik bölümünde öğrenim gören 587 öğrenci (% 73) oluşturmuştur. Veriler, tanımlayıcı özellikler formu, Problem Çözme Envanteri ve Sağlık Bakımında Bilgisayar Kullanımına Yönelik Tutum Ölçeği kullanılarak toplanmıştır. Ölçek toplam puanları ile alt ölçek ve alt grup ortalamaları hesaplanmıştır. Tanımlayıcı istatistikler sayı ve yüzde olarak sunulmuştur. Veriler, Mann – Whitney U, Kruskal – Wallis H ve Spearman korelasyon testleri kullanılarak analiz edilmiştir.

Bulgular: Katılımcıların yaş ortalamasının 20.66±1.79 yıl olduğu, % 61.0'inin kadın olduğu bulunmuştur. Sağlık Bakımında Bilgisayar Kullanımına Yönelik Tutum Ölçeği toplam puan ortalaması 8.36±9.58, Problem Çözme Envanteri toplam puan ortalaması ise 93.41±18.73'dir. Problem Çözme Envanteri ile Sağlık Bakımında Bilgisayar Kullanımına Yönelik Tutum Ölçeği arasında negatif yönlü, zayıf anlamlı ilişki olduğu belirlenmiştir (p = 0.000, r = -0.363).

Sonuç: Bu çalışmada, Problem Çözme Envanterinden düşük puan alan, yani daha güçlü problem çözme becerisine sahip hemşirelik öğrencilerinin sağlık bakımında bilgisayar kullanımına yönelik daha olumlu tutum sergiledikleri bulunmuştur.

Anahtar Sözcükler: Bilgisayar, hemşirelik öğrencileri, problem çözme, sağlık bakımı, tutum

Nurses provide services in fast-paced environments where change is continuous and fast (1), making them use creative, analytical, critical thinking, and decision making skills to manage complex, unique, and high-risk patient care (1, 2). Problem-solving skills in nursing are professional skills that call for effective and rapid clinical decisions that play a key role in providing safe, high-quality, and personalized care (3).

Nursing students providing care in the future in collaboration with other healthcare professionals should practice in realistic and safe clinical settings in order to better their skills (4). Nursing students use problem-solving skills more actively when witnessing loss and death in clinical settings and negative emotions of patients suffering and experiencing hopelessness (5). Helping nursing students develop problem-solving skills is one of the main objectives of the core courses of nursing education (6). Therefore, nursing curricula should be designed in such a way to provide nursing students with the opportunity to develop problem-solving skills (2, 6). Researches shows that problem-solving skills in nursing students can be developed through training and activities (7, 8) and are correlated with readiness for self-learning, academic self-efficacy (9), social anxiety (6), lifelong learning trends (10), and critical thinking (2), and are affected by some independent variables (gender, family type, school graduated) (11).

Problem-solving skills not only help university students solve problems but also make them more capable of accessing information (12). However, the use of computers, which is one of the means of accessing information in nursing practices, has become more and more widespread day by day and has become a mandatory component of health care due to the benefits it provides (13). Academics should, therefore, keep up with advances in technology in order to train nursing students properly (14). It is recommended that undergraduate pre-internship nursing courses involve simulation, video games, learning labs (15), and 3-D, telehealth, and e-learning (16) in order to prepare nursing students for real clinical settings and to bridge the gap between theory and practice (17).

Various studies also show that nursing students had positive attitudes toward computer use in health care (18), affected by having received basic computer education (19) and associated with clinical decision-making skills (20).

To our knowledge, there is no research investigating the relation between nursing students' problem-solving skills and attitudes toward computer use in health care.. In addition to this, it is believed that the results obtained from this study can help be a guide in the training of nurses in regards to critical thinking and clinical decision-making skills, utilizing appropriate technologies in patient care, providing quality patient care, and working as a professional member of the nursing profession.

This study search answers to the following questions: What are the problem solving skills of nursing students? What factors affect nursing students' problem-solving skills? What are the nursing students' attitudes towards computer use in health care? What factors affect nursing students' attitudes toward computer use in health care? Is there a relation between nursing students' problem-solving skills and their attitudes toward computer use in health care?

Method

Objective
This study aimed to determine the relation between nursing students' problem-solving skills and their attitudes toward computer use in health care.

Design
This was a cross-sectional and correlational study.

Setting/Sampling
The study was conducted during the 2018–2019 fall semester in the nursing department of the faculty of health sciences at a university in the TRA2 northeastern region of Turkey (TRA2: Ağrı, Kars, Ardahan, Iğdır). The study population comprised 804 nursing students (198 first-year, 209 second-year, 159 third-year, and 238 fourth-year students). No sampling was performed. Those who agreed to participate in the study were included in the sample. The initial study sample consisted of 591 students. However, four nurses were excluded because they failed to complete the data collection. Therefore, the final study sample consisted of 587 students (73% of the total study population).

Data Collection Tools
Data were collected using a descriptive characteristics form, the Problem-Solving Inventory (PSI) and the Pretest for Attitudes Toward Computers in Healthcare (PATCH) assessment scale.

Descriptive characteristics form

The descriptive characteristics form is based on the literature (10, 20), with a total of 20 questions prepared by

the researchers (students' year of study, age, gender, most recently completed education program, perceived obstacles in the learning process, reasons for choosing the profession, owning a personal computer, etc.).

Problem-Solving Inventory (PSI)

The PSI was developed by Heppner and Peterson (1982) to measure perceived problem-solving skills. Şahin, Şahin, and Heppner (21) adapted it to Turkish and established its validity and reliability. The PSI consists of thirty-five items and six subscales: "Hasty Approach" (9 items), "Thinking Approach" (5 items), "Avoidant Approach" (4 items), "Evaluative Approach" (3 items), "Self-Confident Approach" (6 items), and "Planned Approach" (4 items). The inventory uses a six-point Likert-type scale (1 = "I always act like this"; 2 = "I mostly act like this"; 3 = "I often act like this"; 4 = "I act like this occasionally"; 5 = "I rarely act like this"; 6 = "I never act like this"). Items 9, 11, 22 and 29 are not scored. Items 1–4, 13–15, 17, 21, 25, 26, 30, and 34 are reverse-scored. The lowest and the highest possible points that can be obtained from the scale are 31 and 186, respectively. A high score indicates that the perceived problem-solving skill is low, while a low score indicates that the perceived problem-solving skill is high (21). The PSI had a Cronbach's alpha of 0.88 in the study of Şahin, Şahin, and Heppner (21). The PSI had a Cronbach's alpha of 0.84 in this study.

Pretest for Attitudes Toward Computers in Healthcare (PATCH)

The PATCH scale was developed by Kaminski (1996) to evaluate students' attitudes toward computer use. Kaya and Atabek Aşti (22) adapted it to Turkish and established its validity and reliability. It consists of forty items. Items 1, 2, 4, 6–8, 11, 12, 16–19, 21, 24, 29, 31, 33, 34, 36, and 37 are positive statements scored on a five-point Likert-type scale (strongly agree = 1; agree = 0.5; neither agree nor disagree = 0; disagree = -0.5; strongly disagree = -1). Items 3, 5, 9, 10, 13–15, 20, 22, 23, 25–28, 30, 32, 35, and 38–40 are negative statements reverse-scored (strongly agree = -1; agree = -0.5; neither agree nor disagree = 0; disagree = 0.5; strongly disagree = 1). The total score ranges from -40 to +40. The scale evaluates attitudes toward computer use in health care in six different score groups: group 1 between -40 and -28; group 2 = between -27 and -15; group 3 = between -14 and -4; group 4 = between -3 and 12; group 5 = between13 and 26; and group 6 = between 27 and 40. Higher scores indicate more positive attitudes

toward computer use in health care (22). The PATCH had a Cronbach's alpha of 0.92 in the study of Kaya and Atabek Aşti (22). The PATCH had a Cronbach's alpha of 0.88 in this study.

A pilot test was conducted on February 16, 2018 to test the intelligibility of the descriptive characteristics form. The pilot test sample consisted of 14 volunteer students of the midwifery department of the same faculty. The volunteer midwifery students had similar characteristics to the main study sample. The form was revised based on the pilot study. After distributing the survey, the starting and ending times were recorded, and the average completion time was determined to be 15–20 minutes.

The main study was conducted between December 3 and 7, 2018. The weekly course schedule of the nursing department was checked to determine the suitable course in which to conduct the study, and permission was obtained prior from the instructor of the related course.

Ethical Considerations

The study was approved by the Ethics Committee of the Faculty of Medicine of University (No: 80576354-050-99/180, Date: December 13, 2017). Written permission was obtained from the authors who conducted the Turkish validity and reliability study of the PSI and PATCH scales used in the study. In order to conduct the research, written permission from the faculty of health sciences and consent of all students who voluntarily accepted to participate in the research were obtained.

Data Analysis

The gathered data were analyzed using the IBM Statistical Package for Social Sciences (SPSS) for Windows Version 20.0. Frequencies and percentages were calculated for demographic characteristics.

Participants' mean PSI and PATCH scores and subscale and subgroup scores were calculated. The Kolmogorov–Smirnov (KS) test was used to determine whether the data met the assumptions for parametric tests. The Kruskal–Wallis H (KW) and Mann–Whitney U (Z) tests were used for non-normally distributed data. Spearman's correlation was used to determine the correlation between the PSI and PATCH scores. For the significance level of statistical tests, $p < 0.05$ value is accepted.

Results

Table 1 shows the distribution of participants' PSI and PATCH scores based on descriptive characteristics. Of the participants, 30.0%, 26.0%, 21.5%, and 22.5% were first-, second-, third-, and fourth-year students, respectively. Of them, 61.0% were women, 59.5% held degrees from Anatolian high schools, and 3.9% completed health science vocational high schools. In the study, the mean age of nursing students was determined to be 20.66±1.79.

Table 2 shows the participants' mean PSI scale and subscale scores. They had a mean PSI score of 93.41±18.73. The mean PSI subscale scores were as follows: "Hasty Approach" – 30.74±7.04; "Self-Confident Approach" – 17.23±5.50; "Thinking Approach" – 14.08±4.63; "Avoidant Approach" – 11.52±4.80; "Planned Approach" – 11.30±3.79; and "Evaluative Approach" – 8.52±3.25.

Table 1. Distribution of Nursing Students' PSI and PATCH Scores According to Descriptive Characteristics (n:587)					
Descriptive Characteristics	**n (%)**	**PSI**		**PATCH**	
		Median (SE)	**Min-Max**	**Median (SE)**	**Min.-Max**
Academic Year					
First-year	177 (30.0)	99.0 (1.356)	54.0-155.0	5.50 (0.628)	- 18.50-34.50
Second-year	152 (26.0)	93.5 (1.620)	46.0-174.0	8.00 (0.875)	- 11.00-38.00
Third-year	126 (21.5)	100.0 (1.613)	51.0-140.0	5.75 (0.796)	- 8.00-35.00
Fourth-year	132 (22.5)	96.0 (1.575)	48.0-144.0	6.25 (0.877)	- 11.50-35.50
Test		**p= .005/KW:12.753**		p= .306/KW:3.617	
Gender					
Female	358 (61.0)	94.0 (1.009	46.0-174.0	7.00 (0.496)	- 18.50-36.00
Male	229 (39.0)	100.0 (1.196	49.0-131.0	4.00 (0.643)	- 11.00-38.00
Test		**p= .029/Z:-2.180**		**p= .008/Z:-2.658**	
High School Graduate					
Vocational School of Health	23 (3.9)	97.0 (4.449)	51.0-155.0	7.50 (2.164)	- 9.00-29.00
Anatolian High School	349 (59.5)	96.0 (0.987)	46.0-174.0	6.00 (0.512)	- 11.50-38.00
Science High School	6 (1.0)	103.5 (7.050)	71.0-122.0	16.00 (3.330)	4.00-26.50
General High School	140 (23.9)	98.0 (1.611)	51.0-144.0	6.00 (0.819)	- 18.50-35.50
Associate Degree	22 (3.7)	90.5 (3.926)	51.0-120.0	3.75 (2.064)	- 4.50-33.50
Other	47 (8.0)	96.0 (2.787)	48.0-126.0	7.50 (0.329)	- 4.00-32.50
Test		p= .599/KW:3.661		p= .319/KW:5.867	
Owning a Personal Computer					
Yes	136 (23.2)	96.0 (1.699)	48.0-144.0	8.50 (0.873)	-7.00-35.50
No	451 (76.8)	97.0 (0.866)	46.0-174.0	6.00 (0.437)	-18.50-38.00
Test		p= .638/Z:-0.470		**p= .002/Z:-3.137**	
Education / Course Taking Status About Computer Usage					
Yes	57 (9.7)	99.0 (2.316)	51.0-121.0	7.00 (1.396)	-4.50-35.50
No	530 (90.3)	96.0 (0.820)	46.0-174.0	6.00 (0.411)	-18.50-38.00
Test		p= .754/Z:-0.313		p= .275/Z:-1.092	
View the Effect of Computer Use on Patient Care					
Positive View	525 (89.4)	96.0 (0.824)	46.0-174.0	6.50 (0.424)	-18.50-38.00
Negative View	62 (10.6)	102.0 (2.187)	49.0-124.0	3.75 (1.016)	-5.50-34.00
Test		p= .061/Z:-1.872		**p= .025/Z:-2.248**	
Age of Students (mean±SD)		20.66±1.79 (min: 18; max: 32)			

SE: Standard Error
KW: Kruskal–Wallis H
Z: Mann–Whitney U
SD: Standard Deviation
*p<0.05

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Table 3 shows the participants' mean PATCH subgroup scores. Students had a mean PATCH score 8.36±9.58. None of the participants fell into group one (fear of technology), 0.2% were in group two (uncomfortable using computers), 4.6% were in group three (moderately comfortable using computers), 64.7% were in group four (comfortable using computers), 24.7% were in group five (sure of abilities to use various computer programs), and 5.8% were in group six (very confident in learning how to use computers to increase creativity and health care operability).

The PSI was weakly and negatively correlated with the PATCH (p<0.000, r = -0.363).

Table 4 shows the distribution of participants' PSI and PATCH scores based on some independent variables. Nursing students who love the nursing profession and choose the nursing profession to help people had significantly lower PSI scores and significantly higher PATCH scores (p<0.05). Table 5 shows the distribution of nursing students' PSI and PATCH scores according to preferred activities on the computer. The PSI scores of the nursing students who said yes to accessing information sources / browsing topics, to follow information / news / current sources on the internet and preparing homework were found to be significantly lower and their PATCH scores were significantly higher (p<0.05).

Table 2. Nursing Students' PSI Subscale Score Means (n=587)		
Subscales	X±SD	Min.– Max.
Hasty Approach	30.74±7.04	9.00–52.00
Self-Confident Approach	17.23±5.50	6.00–34.00
Thinking Approach	14.08± 4.63	5.00–29.00
Avoidant Approach	11.52±4.80	4.00–24.00
Planned Approach	11.30±3.79	4.00–24.00
Evaluative Approach	8.52±3.25	3.00–18.00
PSI Total Score Mean	93.41±18.73	46.00–174.00
X: Mean SD: Standard Deviation		

Table 3. Distribution of Nursing Students' PATCH Subgroup Scores (n=587)								
Subgroups	Score Range Available	n (%)	Min.	Max.	X±SD	Median	SE	Test
Group 1	-40 to -28	0(0)	0	0	0	0	0	
Group 2	-27 to -15	1(0.2)	-18.50	-18.50	0	-18.50	0	
Group 3	-14 to -4	27(4.6)	-11.50	-4.00	-5.66±2.27	-4.50	0.437	p< .001 KW:416.646
Group 4	-3 to 12	380(64.7)	-3.50	12.00	3.76±4.13	3.00	0.212	
Group 5	13 to 26	145(24.7)	12.50	26.00	17.81±3.56	18.00	0.296	
Group 6	27 to 40	34(5.8)	26.50	38.00	31.39±3.28	31.25	0.563	
Total	-40 to 40	587(100.0)	-18.50	38.00	8.36±9.58	6.50	0.395	
X: Mean SD: Standard Deviation SE: Standard Error KW: Kruskal–Wallis H								

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Table 4. Distribution of Nursing Students' PSI and PATCH Scores According to Some Independent Variables (n:587)					
Variables	**n (%)**	**PSI**		**PATCH**	
		Median (SE)	**Min-Max**	**Median (SE)**	**Min.-Max**
Perceived Barriers in the Learning Process					
Economic issues					
Yes	284 (48.4)	97.0 (1.073)	48.0-140.0	5.00 (0.547)	-18.50-38.00
No	303 (51.6)	96.0 (1.111)	46.0-174.0	7.50 (0.566)	-11.00-36.00
Test		p= .464/Z:-0.732		**p= .044/Z:-2.017**	
Time issues					
Yes	307 (52.3)	94.0 (1.051)	48.0-140.0	6.50 (0.547)	-18.50-35.00
No	280 (47.7)	100.0 (1.108)	46.0-174.0	5.25 (0.573)	-10.00-38.00
Test		**p= .000/Z:-4.094**		p= .305/Z:-1.026	
Technology issues					
Yes	161 (27.4)	94.0 (1.495)	46.0-174.0	7.00 (0.773)	-11.50-36.00
No	426 (72.6)	97.0 (0.904)	48.0-155.0	6.00 (0.459)	-18.50-38.00
Test		p= .622/Z:-0.493		p= .087/Z:-1.712	
Research issues					
Yes	98 (16.7)	94.0 (1.856)	50.0-140.0	8.75 (0.862)	-4.00-35.00
No	489 (83.3)	97.0 (0.850)	46.0-174.0	5.50 (0.441)	-18.50-38.00
Test		p= .409/Z:-0.825		**p= .016/Z:-2.417**	
Not knowing how to learn					
Yes	149 (25.4)	96.0 (1.506)	56.0-144.0	8.50 (0.705)	-9.00-35.00
No	438 (74.6)	96.5 (0.901)	46.0-174.0	5.25 (0.471)	-18.50-38.00
Test		p= .746/Z:-0.324		**p= .008/Z:-2.669**	
Reasons for Choosing the Profession*					
More job opportunities					
Yes	353 (60.1)	96.0 (0.983)	46.0-174.0	7.00 (0.499)	-18.50-38.00
No	234 (39.9)	97.5 (1.253)	48.0-140.0	4.75 (0.646)	-11.50-35.50
Test		p= .497/Z:-0.679		p= .054/Z:-1.924	
Helping people					
Yes	142 (24.2)	93.0 (1.678)	51.0-174.0	9.50 (0.781)	-11.50-35.00
No	445 (75.8)	98.0 (0.865)	46.0-144.0	5.00 (0.453)	-18.50-38.00
Test		**p= .009/Z:-2.597**		**p= .000/Z:-3.819**	
Like profession					
Yes	138 (23.5)	94.5 (1.526)	49.0-155.0	8.50 (0.748)	-11.50-34.00
No	449 (76.5)	98.0 (0.894)	46.0-174.0	5.00 (0.461)	-18.50-38.00
Test		**p= .031/Z:-2.152**		**p= .002/Z:-3.071**	
SE: Standard Error **Z:** Mann–Whitney U *p<0.05					

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Preferred Activities on the Computer	n (%)	PSI		PATCH	
		Median (SE)	Min-Max	Median (SE)	Min-Max
Table 5. Distribution of Nursing Students' PSI and PATCH Scores According to Preferred Activities on the Computer (n:587)					
Accessing information sources / browsing topics					
Yes	242 (41.2)	92.0 (1.323)	46.0-174.0	8.50 (0.597)	-11.50-38.00
No	345 (58.8)	100.0 (0.904)	49.0-144.0	4.50 (0.520)	-18.50-35.50
Test		**p= .000/Z:-4.339**		**p= .000/Z:-3.807**	
To follow information / news / current sources on the internet					
Yes	290 (49.4)	93.0 (1.154)	46.0-174.0	7.50 (0.564)	-11.00-38.00
No	297 (50.6)	100.0 (0.998)	49.0-144.0	4.50 (0.552)	-18.50-35.50
Test		**p= .000/Z:-4.531**		**p= .035/Z:-2.106**	
Using e-mail					
Yes	91 (15.5)	88.0 (2.250)	46.0-174.0	9.50 (1.180)	-7.00-38.00
No	496 (84.5)	97.0 (0.811)	48.0-155.0	6.00 (0.411)	-18.50-35.50
Test		**p= .004/Z:-2.865**		**p= .010/Z:-2.559**	
Chat / WhatsApp / Communication with friends					
Yes	331 (56.4)	95.0 (1.080)	46.0-174.0	7.00 (0.546)	-18.50-36.00
No	256 (43.6)	98.0 (1.089)	49.0-144.0	5.00 (0.566)	-11.00-34.00
Test		p= .101/Z:-1.639		p= .082/Z:-1.741	
Using social media (facebook, instagram ects.)					
Yes	284 (48.4)	94.5 (1.153)	48.0-174.0	7.50 (0.594)	-18.50-36.00
No	303 (51.6)	100.0 (1.028)	46.0-144.0	4,50 (0.518)	-10.00-38.00
Test		**p= .007/Z:-2.709v**		**p= .001/Z:-3.273**	
Preparing homework					
Yes	236 (40.2)	94.0 (1.229)	48.0-174.0	8.50 (0.613)	-18.50-38.00
No	351 (59.8)	99.0 (0.983)	46.0-155.0	5.00 (0.513)	-11.50-36.00
Test		**p= .001/Z:-3.336**		**p= .002/Z:-3.143**	
Surf on Internet					
Yes	260 (44.3)	95.5 (1.196)	46.0-174.0	7.50 (0.639)	-11.50-38.00
No	327 (55.7)	97.0 (1.012)	51.0-143.0	5.00 (0.489)	-18.50-35.00
Test		p= .392/Z:-0.856		**p= .008/Z:-2.639**	
SE: Standard Error **Z:** Mann–Whitney U *p<0.05					

Discussion

This study aimed to determine the relation between nursing students' problem-solving skills and attitudes toward computer use in health care.

This result shows that the nursing students participating in the study were at a moderate level in problem-solving skills (Table 2). According to this result, it can be said that the problem solving skills of nursing students need to be developed. There are many studies in the literature with different results where nursing students are examined on problem-solving skills (7, 9, 10, 11, 23, 24). The results of

some of these studies are in line with the results of this study. Ilıman (2017), Yüksel (2015), and Koç et al. (2015) reported nursing students' mean PSI total scores indicating moderate problem-solving skills, which is similar to this study's result. Nurses should possess problem-solving skills to be able to provide professional, safe, and individual-oriented care (25). For this reason, it is important that nursing students gain problem-solving skills during their education. It can be said that interactive methods should be used in the education process and critical thinking skills should be developed in the development of problem solving skills.

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It is thought that individuals with effective problem-solving skills can cope with the negative emotions and situations that arise, and they can turn negative situations into advantageous opportunities for individual growth. In addition, the literature shows that students with strong problem-solving skills have low social anxiety and high social resilience (6), and students with weak problem-solving skills showed an increase in suicidal thoughts (26). Whatever the reason may be for a lack in problem-solving skills, university counseling and psychological services can guide students to develop the problem-solving skills necessary to thrive in their personal, social, and professional/academic lives.

As a result of the literature review, the PSI total score is as in the study, considering the subdimensions of some moderately evaluated studies (10, 23, 27). Ilıman (2017) reported nursing students' mean PSI subscale scores for "planned approach" and "self-confident approach" as 10.61±3.81 and 19.31±5.94, respectively. Yalçın et al. (2010) reported nursing students' mean PSI subscale scores for "evaluative approach" and "avoidant approach" as 6.96±2.17 and 9.06±3.85, respectively. Yıldırım et al. (2014) reported nursing students' mean PSI subscale scores for "hasty approach" and "thinking approach" as 30.42±6.59 and 14.54±4.39, respectively. The difference in these results might be due to the fact that those studies were carried out in different provinces; their participants had different sociodemographic characteristics, and different learning models were employed. The subdimension of the "evaluative approach" in this study can be considered as an indication that, prior to the study, the nursing students had had the skills to be able to make decisions and to evaluate the results of their attempts. For the nursing profession, determining the nursing care to be administered to both patients and healthy individuals as well as evaluating the outcomes of these decisions is considered important. In nursing care it is also important to identify patient needs, plan and implement the correct nursing interventions, and evaluate care outcomes.

Considering the minimum and maximum scores that can be obtained from the PATCH, the total mean score of the PATCH shows that nursing students participating in the study were at a moderate level attitudes toward computer use in health care (Table 3). From the studies in the literature carried out on nursing students and nurses by using PATCH, Özen et al. (2017), Oksay Şahin, Yalçın Nar, Pehlivanoğlu Yütmez & Yılmaz Çam (2016), and Gürdaş Topkaya (2013) reported nursing students' mean PATCH scores (20, 28, 29) indicating above moderate attitudes

toward computer use in health care, which is higher than this study's result. The reasons for the difference between scores from this study and the aforementioned studies are thought to be students' sociodemographic differences, students' level of interaction with the computers in the clinical area of the schools where the studies were conducted, and whether or not students had taken computer-based lessons.

Most of the nursing students in this study were in the fourth and fifth groups of the PATCH, which is similar to the results of previous studies (18, 20, 28). Atay et al. (2014) reported that 41.7% and 45.3% were in groups four and five, respectively. Oksay Şahin et al. (2016) reported that 42.8% and 44.6% of nursing students were in the groups four and five, respectively. Özen et al. (2017) reported that 52.9% and 37.1% of nursing students were in the groups four and five, respectively. Advances in technology impose new roles on nurses. Nurses' readiness for information and communication technology plays a key role in developing a common terminology and utilizing nursing information systems (30). In this context, it is very important to improve the attitudes of nursing students who will move forward in their professional lives with advancing technology. Research conducted by Abraham and Abdeldafie (2017) concluded that nursing students showed positive attitudes toward computers, and those who showed positive attitude approved of using computers as learning tools (31). Fidancıoğlu, Beydağ, Gök Özer & Kızılkaya (2008) reported that most nursing students (93.5%) thought that they should use computers and the internet to be able to carry out their professional responsibilities diligently and in accordance with technical and professional standards (32). None of our participants fell in the first PATCH group, indicating that they do not suffer from cyberphobia nor have anxiety related to computer use in health care. The results also show that more than half of the participants are comfortable using computers (group three) and are aware of the usefulness of computers in health care (group four). Few participants were enthusiastic about or had positive attitudes toward the potential of computer use in health care, suggesting that nursing students should be offered more computer courses and provided with learning activities using computers.

The participants' PSI scores were weakly and negatively correlated with their PATCH scores. The lower the PSI scores, the higher the PATCH scores, indicating that the better the problem-solving skills, the more positive the participants' attitudes toward computer use in health care. This is the first study to investigate both the nursing students'

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problem-solving skills and their attitudes toward computer use in health care. Therefore, this finding has been discussed with the results of other studies related to the subject, and the sample group of these studies is different from this study. Çalışkan (2016) reported no correlation between preservice teachers' problem-solving skills and their perceived computer efficacy (33). Yılmaz and Aktürk (2017) reported that the higher the confidence in computer programming, the more positive the students' attitudes toward problem-solving (34). Computers are an integral part of our daily life. They not only make it easier for us to access information, but also guide us in using the information correctly. People actively use computers to solve problems they face in both their personal and professional lives. The results of this study show that nursing students with stronger problem-solving skills are more likely to use computers to solve problems or to access information in health care. In light of this information, it is important for nursing students to develop problem-solving skills because they will likely interact more with computers and highly advanced technological equipment in their future professional lives.

Study Limitations

The findings obtained from the research can be generalized to students studying in the nursing department of the faculty of health sciences during the 2018–2019 fall semester. Therefore, the results cannot be generalized to the entire population.

Conclusion

This study result shows that the nursing students participating in the study were at a moderate level in problem-solving skills and were at a moderate level attitudes toward computer use in health care. This study found that nursing students who had low scores on the problem-solving inventory, that is, stronger problem-solving skills, demonstrated more positive attitudes toward computer use in health care.

Recommendations

Nursing curricula should include courses to help students develop critical thinking and problem-solving skills. Students' problem-solving skills should be evaluated at the beginning of each academic year. Seminars and trainings should be organized on regular basis to raise students' awareness of the advantages and disadvantages of technology and the internet. During clinical internships, mentor nurses should introduce students to nursing informatics.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

Intensive Care Nurses' Ethical Challenges Caring for People with COVID-19: A Qualitative Study

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ABSTRACT

Purpose: The purpose of this study was to analyze the ethical challenges experienced by nurses, who provide care for COVID-19 patients in intensive care units.

Methods: Qualitative phenomenological method was used with in-depth interviews, focusing on the concept of "ethical challenges". The study was conducted with 15 nurses working in Adult Intensive Care Units who were members of a National Nursing Association. The data were collected through the personal information form and in-depth interviews involving 5 questions regarding ethical challenges. The interviews were recorded in writing and then turned into a written document. Analysis of the open-ended questions was performed using the content analysis was done by Giorgi's phenomenological method analysis.

Results: Five themes and nine sub-themes have emerged as a result of in-depth interviews. Themes were defined as the Concept of Ethical Dilemma, Conditions in which an Ethical Dilemma is Experienced, Ethical Challenges in a Newly Defined Infectious Disease, Guiding Ethical Principles, and the Ways to Cope with an Ethical Dilemma. Sub-themes were identified as the conflict of interest, patient rights, patient privacy, role confusion, professional incompetence, non-maleficence, beneficence, confidentiality, and professional ethics.

Conclusion: The nurses expressed that they had an ethical difficulty and ethical dilemma in a newly defined infectious disease. It is of importance to set international standards on the priority of care and the quality of care, which will eliminate ethical dilemmas for care during the pandemic.

Keywords: COVID-19, ethical challenges, intensive care nurses, phenomenological method

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Yoğun Bakım Hemşirelerinin COVID-19'lu Hastalarda Yaşadığı Bakım Etiği Sorunları: Nitel Bir Çalışma

ÖZET

Amaç: Bu çalışma Covid-19 pozitif tanısı ile yoğun bakım ünitelerinde yatan hastalara bakım veren hemşirelerin deneyimlediği etik sorunların derinlemesine bireysel görüşmeler ile analiz edilmesi amacıyla planlandı.

Yöntem: Bu çalışmada "etik sorunlar" kavramı merkez alınarak derinlemesine bireysel görüşmelerin yapıldığı kalitatif fenomenolojik yöntem kullanıldı. Çalışma Erişkin Yoğun Bakım ünitelerinde çalışan 15 hemşire ile yürütüldü. Veriler kişisel veri formu ve ethical challenges sorgulayan 5 sorunun yer aldığı derinlemesine görüşmeler ile toplandı. Görüşmeler yazılarak kayıt altına alındı ve sonrasında yazılı doküman haline getirildi. Açık sonlandırılmış soruların analizi Giorgi'nin fenomenolojik içerik analizi yöntemiyle yapıldı.

Bulgular: Yapılan derinlemesine görüşmeler sonucunda beş tema, dokuz alt tema ortaya çıkmıştır. Temalar; Etik İkilem Kavramı, Etik İkilem Yaşanılan Durumlar, Yeni Tanımlanan Bir Bulaşıcı Hastalıkta Etik Sorunlar, Yol Gösterici Etik İlkeler, Etik İkilemde Baş Etme Yolları şeklinde belirlendi. Alt temalar; çatışma yaşama, hasta hakları, hasta mahremiyeti, rol karmaşası, mesleki yetersizlik, zarar vermeme, yarar sağlama, gizlilik ve meslek etiği olarak saptandı.

Sonuç: Hemşireler, yeni tanımlanan bulaşıcı bir hastalıkta etik zorluk yaşadıklarını ve etik ikilem yaşadıklarını ifade ettiler. Bu bulgular ışığında salgın sürecinde bakıma yönelik etik ikilemleri ortadan kaldıracak olan bakımın önceliği ve bakımın niteliği konularında uluslararası bir standart belirlenmesi önerilmektedir.

Anahtar Kelimeler: COVID-19, etik sorunlar, yoğun bakım hemşireleri, fenomenolojik yöntem

The group of patients in intensive care, which are specialized units, consists of vulnerable patients whose general condition is variable and who need intensive nursing care (1,2). In addition, intensive care units are highly complex units that use high technology, which require up-to-date knowledge and skills constantly (3). Such reasons play a fundamental role in the frequent and significant medical and ethical challenges in intensive care (4). Ethical challenge is a concept that covers situations such as ethical dilemma and conflict of interest (5,6). Health professionals, patients and patient relatives may face ethical challenges in the care and treatment process of this vulnerable, high-risk group (1,7,8). Studies revealed that intensive care nurses usually experience an ethical challenge in issues such as obtaining informed consent, the protection of patient's privacy, allocating of medical resources in a fair manner, informing patients about the process of diagnosis and treatment, care of terminally-ill patients, and the protection of patient rights (9-12).

COVID-19 is a respiratory disease can be transmitted from human to human when a person with COVID-19 coughs/exhales or with small droplets spreading through the mouth, causing people to be admitted to intensive care due to severe respiratory distress (13,14). Nurses have to face the ethical challenges of treating infectious diseases, such as fear of getting infected when providing care and treatment for COVID-19 patients, failure of treatment, and high mortality rates (15). In addition, due to the increased number of patients and burden of work in relation to COVID-19 outbreak, nurses experience inadequacy and encounter numerous ethical challenges such as patient triage to make room for critically ill patients in the intensive care unit, treatment refusal by the patients or patient relatives and their demands for clinical discharge despite the vital risks, limited resources, and the provision of patient's privacy (12,15,16).

This study aims to analyze the ethical challenges experienced by nurses, who provide care for COVID-19 patients in intensive care units, through in-depth interviews. The results of this study will allow us to evaluate the current status and identify the requirements in this area.

MATERIAL AND METHODS

Design
In this study, phenomenological method was used among the qualitative research designs in which in-depth interviews were conducted to reach reproducible and valid inferences by focusing on the concept of "ethical challenges".

Sampling
The research population was composed with nurses working in Adult Intensive Care Units who were members of a National Nursing Association. Since there is no specific sample size in phenomenological research, the research is terminated when the data begin to be repeated, that is, and when the researcher obtains satisfactory data (when there is no new information). Since the data in this study repeated after 15 nurses, the study was completed with 15 nurses. Research inclusion criteria for nurses include working in intensive care unit, provision of care to inpatients with a positive diagnosis of COVID 19 for at least three months, and agreeing to participate in the study.

Data collection
A Personal Information Form and a Semi-Structured Interview Form were used to collect study data.

Personal Information Form: This form asks the age, the total working years, and the working years in intensive care.

Semi-Structured Interview Form: This form asks 5 questions aimed at learning the nurses' views on the care of COVID-19 patients; (a) What does the concept of ethical dilemma mean to you? (b) What is the most common situation you encounter in patient care that causes an ethical dilemma? (c) What are the ethical challenges you experienced in relation to a newly identified infectious disease? (d) What are the guiding ethical principles when you encounter an ethical dilemma? (e) How do you deal with situations where you encounter an ethical dilemma?

The study data were collected between September 2020 and October 2020. Due to the COVID-19 contagion, the interviews were conducted live in an online platform. After the interview, nurses were asked if there were issues they wanted to add or remove in order to get participant confirmation, and their answers were reviewed again. The responses of the nurses were presented as is in the results section. Semi-structured interviews were recorded with the permission of the participants, and their statements were written in Microsoft Word. Each interview lasted 25-40 minutes.

Analyses
The data obtained from semi-structured interviews were thematically analyzed. The content analysis of the interviews obtained in the study was conducted via Giorgi's phenomenological method analysis. Giorgi's

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phenomenological method analysis (17,18) was performed in 4 stages. First, all interview reports were read and re-read to understand the text content in a general sense (open coding). Second, the reports were re-read from a phenomenological perspective of reduction, and divided into smaller units, and meanings were formed through modifications and transformations (vertical coding). In the third step, the meaning units were further analyzed until the meanings of the phenomenon were revealed, and that is, meaningful units were obtained (selective coding). In the final step, the significant units were converted into the essence and components of the phenomenon. The meaning of the phenomenological study developed successfully during the analyses (18,19). The numbers indicated at the end of the statements are the participant numbers given to the nurses.

Rigor

Four methods were followed to establish the validity and reliability of the study: (a) To provide variety, the data were collected in in-depth interviews method. (b) The quotations from the interviews were represented in their original form, without being interpreted. (c) The data were coded by two independent researchers, and, for internal reliability, Cohen's Kappa coefficient was measured. (d) The records of the interviews were saved for confirmation purposes in terms of external reliability. (e) This study was reported according to the COREQ (Consolidated criteria for reporting qualitative research) 32-item checklist (19).

Ethics approval

The research approval was obtained from ___ University Scientific Research and Publication Ethics Committee (Ethics Committee meeting date: September 9th, 2020, decision no:2020/32/2). After obtaining the approval of the ethics committee, written consents of the participants were obtained. The names of the nurses were kept confidential, and instead of names, the participant (intensive care nurses- ICN) numbers were used at the end of the statements.

RESULTS

Of the nurses involved in the study, 13 were female and 2 were male. The average age of the participants was 32.57±6.36 (min 23 - max 46), the total working year average was 8.63±6.18 (min 4 - max 27), and the average working years in intensive care was 4.11±3.18 (min 3 - max 12).

The five main themes and nine sub-themes were determined according to the interviews with the nurses. The main themes were identified as the Concept of Ethical Dilemma, Conditions that cause an Ethical Dilemma, Ethical Challenges in a Newly Identified Infectious Disease, Guiding Ethical Principles, Ways to Cope with an Ethical Dilemma (Table 1).

Table 1. List of themes and sub-themes	
Themes	Sub-themes
Concept of Ethical Dilemma	1.Conflict of Interest
Conditions that cause an Ethical Dilemma	1.Patient Rights 2.Patient Privacy 3.Role Confusion
Ethical Challenges in a Newly Identified Infectious Disease	1.Professional incompetence
Guiding Ethical Principles	1.Non-Maleficence 2.Beneficence 3.Confidentiality
Ways to Cope with an Ethical Dilemma	1.Professional Ethics

MainTheme 1: Concept of Ethical Dilemma

Sub-themes 1. Conflict of Interest

The nurses described the concept of ethical dilemma as having a conflict of interest in choosing the right action. An examination of the statements of intensive care nurses revealed that they had difficulty deciding which option was better when there are two or more options. Nurses have stated that they may have conflicts with patients, patient relatives, and physicians in different situations and encounter an ethical dilemma.

"It can be difficult to decide which patient needs more care when providing care for patients with COVID-19." (ICN 4).

"Patient relatives want to stay with their patients with COVID-19, and then they want to leave the patient and move on with their lives. When we try to explain the situation, we experience conflicts with patient relatives. " (ICN 3).

MainTheme 2: Conditions that cause an Ethical Dilemma

Sub-themes 1. Patient Rights

The nurses expressed an ethical dilemma about the neglected of patient rights. According to the statements of the intensive care nurses, patient rights are neglected since it is impossible in most cases to communicate with critical patients, inform them about the treatment and care plans, and obtain their consent.

"I try to provide current treatment regime without wasting time without being able to provide detailed information about the treatment in COVID-19 patients, and patients are forced to give consent since they have no other option." (ICN 8).

"I can't communicate with COVID-19 patients whose condition is critical, I can't get their approval for the care practices, I'm just trying to make sure their condition doesn't get worse" (ICN 10).

Sub-themes 2. Patient Privacy

The majority of intensive care nurses stated that they encountered an ethical dilemma regarding the violations of patient privacy. Nurses stated that due to the rapid increase in the number of patients, they started to provide care for patients above the capacity of intensive care beds, and neglected patient privacy.

"Due to the increase in the number of patients I provide care for, I cannot pay attention to patient privacy in treatment and care practices" (ICN 9).

"I cannot consider patient privacy a priority in order to be able to work effectively and quickly in the COVID-19 intensive care unit where I work" (ICN 9).

Sub-themes 3. Role Confusion

The nurses all expressed the role confusion as the most common ethical dilemma. Nurses explained their views on situations in which they encountered an ethical dilemma as follows.

"Apart from a few physicians, mostly the nurses deal with patients, and often nurses do the practices that the physicians should do. First, we did not interfere with the ventilator to attract doctors to care for patients. Then, the hospital management told us that we needed to perform every intervention possible. As a result, currently, other than 2 physicians, others see the patient only to perform routine checks and do not perform any practice." (ICN 12).

MainTheme 3: Ethical Challenges in a Newly Identified Infectious Disease

Sub-themes 1. Professional Incompetence

According to the nurses, the common ethical challenge encountered when providing care for patients with a newly identified infectious disease was identified as professional incompetence. Nurses stated that they were providing care to COVID-19 patients for the first time, and that they did not have enough experience. They also stated that they felt professional incompetence when they did not see signs of improvement in patients after providing patients the necessary treatment and care.

"I'm trying to provide COVID-19 patients the treatment and care they need by putting myself in danger, but seeing that it doesn't work makes me feel inadequate." (ICN 2).

"It saddens me to see my nurse mates infected one by one. Due to the shortage of nurses, they are constantly assigned. This causes inadequacy and fatigue." (ICN 1).

MainTheme 4: Guiding Ethical Principles

Sub-themes 1. Non-Maleficence

All nurses stated the principle of non-maleficence as a common guiding principle. Intensive care nurses noted that they did not want any more harm, especially to patients suffering from respiratory distress during the challenging process of treatment of COVID-19 disease. Nurses defined the principle of non-maleficence as the harm to the patient due to inexperience and lack of necessary measures.

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"My priority when providing care and treatment for patients with COVID-19 is to prevent them being harmed." (ICN 1).

"Patients with COVID-19 already have shortness of breath, and I make efforts to avoid further harm in the treatment and care process." (ICN 5).

Sub-themes 2. Beneficence

Many of the nurses stated the principle of beneficence as the second guiding principle. Nurses have defined the beneficence principle as providing safe nursing care to the individuals they treat and provide care, through up-to-date knowledge and technological means.

"Since patients experience respiratory distress, I try to perform practices that will be beneficial and will relieve them." (ICN 3).

"COVID-19 is quite a new and unknown disease. Therefore, I have to follow constantly updated treatment protocols, new regulations, and current news." (ICN 7).

Sub-themes 3. Confidentiality

According to the statements of the intensive care nurses, the third subtheme is the confidentiality principle regarding the guiding ethical principles in patient care.

"Since COVID-19 is an infectious disease, it is important to both keep patient confidentiality and provide the necessary information to the authorities." (ICN 11).

MainTheme 5: Ways to Cope with an Ethical Dilemma

Sub-themes 1. Professional Ethics

According to the nurses, the professional ethics theme has emerged related to the path followed in cases where there is an ethical dilemma. Nurses have stated that they primarily aim to meet their professional obligations when providing care for patients.

"When providing care for patients, I try to act by thinking about the obligations required by my profession, and the things I can do with my knowledge and skills". (ICN 10).

"Since COVID-19 is an infectious disease, I need to both protect myself and provide the patient with the necessary care. This challenges me sometimes, but I try to fulfill the requirements of my profession by considering about the patient and his/her family." (ICN 11).

DISCUSSION

Intensive care nurses expressed their views on ethical dilemma in the theme of experiencing conflicts. Ethical dilemmas in health care occur when there is a conflict between the two choices in professional actions and patient care decisions (20). Conflicts of interest are among the most common ethical challenges in studies that investigate the ethical dilemmas experienced by nurses in intensive care units (11,12). Selection of patients with stable condition for hospitalization in order to open room for patients with critical condition in the intensive care units due to COVID-19 outbreak, fair use of respiratory support devices, assigning nurses to perform the duties of physicians, treatment refusal of patients and patient relatives, and their discharge demands despite the vital risks cause ethical dilemma for nurses and leads to conflict of interest with physicians and patient relatives (12,16,21). In this context, it is recommended to set an international standard on the priority of care and the quality of care, which will eliminate the ethical dilemma.

Intensive care nurses have cited ethical dilemmas with themes of patient rights, patient privacy and role confusion. The importance attached to patient rights and patient privacy has led to many ethical dilemmas due to the COVID-19 outbreak (16,22). During the pandemic, patients' rights to receive information about treatment and care plans, the right to choose a physician/nurse and treatment, and the right to keep their personal information confidential are violated (15). In addition, individuals were deprived of their decision-making rights, considering that patients whose condition was critical and unable to communicate gave consent and accepted treatment (23). As advocates of patient rights within the health care system, nurses play a role in informing patients and obtaining their consent, freeing the medical process from unnecessary procedures, and ensuring that the actions taken are in favor of the patient in general (24). During the pandemic, nurses' efforts to effectively defend patient rights and at the same time provide qualified care to patients also cause nurses to experience a role confusion with physicians.

Intensive care nurses have stated the guiding ethical principles with themes of non-maleficence, benevolence, and confidentiality. Ethical principles are guiding principles for medical personnel in solving ethical problems; and, a study reported that ethical principles (28.19%) rank first in the guidelines nurses use to solve ethical problems they encountered (25,26). In the COVID-19 pandemic, beneficence, fairness, non-maleficence, autonomy, privacy principles are the basic principles adopted within the scope of ethics. The ethical main goal in the provision of basic health care is to provide the greatest benefit possible to the largest number of patients (12). During the pandemic process, priority requirements of patients should be determined and the ethical principles of beneficence-fairness should be taken into account for the correct allocation of limited resources (27). In accordance with the privacy principle, the patient's secrets should not be disclosed to anyone else without his/her permission. Given high morbidity, mortality rates and the degree of contagion of COVID-19, however, confidentiality should be limited to public health interests (16,21). It is also important that hospital systems report positive cases to public institutions so that the data needed to allocate resources and make treatment and care decisions accurately.

According to the statements of intensive care nurses, the theme of professional ethics has emerged related to the path followed in cases where there is an ethical dilemma. Professional ethics is the requirement for employees of the same profession all over the world to comply with the rules of conduct that they practice with respect to social benefits (28). Professional ethics in nursing is important for developing a moral perspective towards ethical challenges encountered in nursing practice, protecting patient rights, and ensuring patient safety (29). Three generally accepted principles in professional ethics (principles of beneficence, fairness and respect for the individual) are the basic principles that guide nurses when providing care for patients. When proper protective clothing is available in accordance with these principles, it is considered to be the ethical duty of a professional intensive care nurse to provide care to COVID-19 positive patients (16). Given the risk of transmission without proper protective equipment, it is recommended that each nurse should develop the individual reasoning ability to assess personal risks when providing care for a COVID-19 positive patient.

Limitations of the study

Phenomenology studies may not result in precise and generalizable findings in accordance with the nature of qualitative research. However, they can reveal examples, explanations, and experiences that will provide results that will help us better recognize and understand a phenomenon. The generalizability of the findings in the current study is limited by its qualitative nature as well as the fact that it only covers responses from 15 nurses.

CONCLUSION AND IMPLICATIONS FOR NURSING PRACTICE

Intensive Care Nurses' have to face the ethical challenges of treating infectious diseases when providing care and treatment for COVID-19 patients. The in-depth interviews with nurses who provide care for COVID-19 patients in intensive care units revealed that the nurses experience ethical challenges in issues such as conflict of interest, patient rights, patient confidentiality, role confusion, professional incompetence, non-maleficence, beneficence, privacy and professional ethics.

In light of these themes, it is of importance to set international standards on the priority of care and the quality of care, which will eliminate ethical challenge for care during the pandemic. It is also recommended that nurses be provided with proper protective equipment, informed regarding current treatment and care practices, and that each nurse assesses their personal risk rating accordingly when providing care for a COVID-19 positive patient.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

The Impact of Job Satisfaction on Organizational Commitment Among Generation Y Healthcare Employees

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ABSTRACT

Objective: This study reported on the knowledge on the factors impacting job satisfaction and organizational commitment in the healthcare sector. It critically examined the relationship between job satisfaction and organizational commitment among Generational Y healthcare workers.

Methods: The study involved 236 healthcare professionals working in a private healthcare group in Istanbul, The primary method of data collection was a questionnaire composed of three sections. The first section recorded data concerning participants' demographic information. The second and third sections aimed to assess the participant's job satisfaction and organizational commitment by applying the Minnesota Job Satisfaction scale and the Organizational Commitment scale developed by Meyer and Allen. In data analysis and evaluations, frequency tables, central and prevalence criteria, Pearson's correlation test and simple linear regression analysis were employed and analysed in the SPSS 20 statistical package program.

Results: Of 236 healthcare workers, 49.4% of the participants expressed that they have been working in the organization for 1 to 5 years. Among those healthcare workers who belonged to generation Y, a significant and positive relationship was found between job satisfaction and organizational commitment (r = 0.719, p = 0.000).

Conclusion: Our study results demonstrated a positive and significant relationship between job satisfaction and their organizational commitment among Generation Y healthcare workers. Among the factors identified, it was observed that pecuniary and moral support received by employees have increased the perception of job satisfaction, whereas economic security and rewards associated with the employment strengthened organizational commitment. The study discussed human resources practices that will strengthen job satisfaction and organizational commitment.

Keywords: Job satisfaction, generation Y, organizational commitment

Y Kuşağı Sağlık Çalışanlarında İş Doyumunun Örgütsel Bağlılığa Etkisi

ÖZET

Amaç: Bu çalışmada sağlık sektöründe iş tatmini ve örgütsel bağlılığı etkileyen faktörler hakkında bilgi verilerek Y kuşağı sağlık çalışanlarının iş doyumu ile örgütsel bağlılıkları arasındaki ilişkinin incelenmesi amaçlanmıştır

Yöntem: Araştırma, İstanbul ilinde faaliyet gösteren ve kolayda örnekleme yoluyla belirlenen bir özel grup hastanesinde gerçekleştirilmiştir. Araştırmanın örnekleminde, araştırmaya katılmayı kabul eden 236 çalışan yer almaktadır. Araştırmada veri toplama aracı olarak anket uygulanmıştır. Üç bölümden oluşan anketin ilk bölümünde katılımcıların demografik bilgilerine ilişkin veriler kaydedilmiştir. İkinci ve üçüncü bölümlerde, Minnesota İş Doyum Ölçeği ile Meyer ve Allen tarafından geliştirilen Örgütsel Bağlılık Ölçeği uygulanarak katılımcıların iş tatmini ve örgütsel bağlılıklarının değerlendirilmesi amaçlanmıştır. Veriler elektronik ortama aktarılarak, SPSS 20 istatistik paket programında analiz edilmiştir. Analiz ve değerlendirmelerde sıklık tabloları, merkezi ve yaygınlık ölçütleri, Pearson korelasyon testi ve basit doğrusal regresyon analizleri kullanılmıştır.

Bulgular: 236 sağlık çalışanının %49,4'ü kurumda 1 ila 5 yıldır çalıştığını ifade etmiştir. Elde edilen bulgulara göre, Y kuşağı sağlık çalışanlarının iş doyumları ile örgütsel bağlılıkları arasında istatiksel olarak pozitif yönde kuvvetli, anlamlı ilişki bulunmuştur (r=0.719, p=0.000).

Sonuç: Araştırma sonuçları Y Kuşağı sağlık çalışanları arasında iş tatmini ile örgütsel bağlılıkları arasında pozitif ve anlamlı bir ilişki olduğunu göstermiştir. Belirlenen faktörlerden çalışanların aldığı maddi ve manevi desteğin iş tatmini algısını artırdığı, ekonomik güvence ve istihdamla bağlantılı ödüllerin ise örgütsel bağlılığı güçlendirdiği görülmüştür. İş tatmini ve örgütsel bağlılığı güçlendirecek insan kaynakları uygulamaları ele alınarak tartışılmıştır.

Anahtar Kelimeler: İş doyumu, Y kuşağı, örgütsel bağlılık

Job satisfaction and organizational commitment of employees are considered important issues for hospital administrators in human resources management. The determination of levels of job satisfaction and organizational commitment in a hospital also yields to important findings on their effects on hospital performance, efficiency, employee productivity and quality of patient care (1, 2). In the literature, the relationship between organizational commitment and job satisfaction is described as a two-way relationship, meaning the concepts are both their antecedents and consequences (3,4). High levels of job satisfaction and organizational commitment are associated with more positive work outcomes, whereas low levels are perceived to lead to poor organizational performance (5). Such findings support the current trend in human resources management in healthcare industry for the creation of work environments where greater organizational commitment and high levels of job satisfaction and organizational commitment of healthcare employees can be achieved.

There are multiple definitions of job satisfaction in business literature (6). The most prevalent definition by Locke (1976) describes job satisfaction as 'a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences' (7). Hulin, Judge and Klinger (2003) attribute three multidimensions to job satisfaction, including cognitive, emotional and behavioural components (8, 9). The concept of job satisfaction reflects the employee's reaction to the job itself or to certain aspects of the job (10). On the other hand, organizational commitment is an employee's strong desire to remain a member of a certain organization, the belief in and adoption to the organization's values and goals, and the willingness to strive for effectiveness and success on behalf of the organization (11, 12).

Low levels of job satisfaction and organizational commitment may have adverse impact on the overall performance in hospitals including the quality of healthcare, patient loyalty and the profitability of hospitals (13). Management practices in hospitals are often cited as factors leading to such low levels. Healthcare employees who feel undervalued, neglected, disregarded, unappreciated and excluded from decision making processes have reported greater dissatisfaction (14). A systematic review of the levels of job satisfaction and organizational commitment should be carried out by hospital administrations in order to detect declining levels in existing working practices and put in place necessary administrative and policy tools (15).

Workforce in hospitals is increasingly composed of employees from three generations. Generations possess their own unique experiences, expectations and values that require special attention from a human resources perspective (16). Managers and leaders should also analyse intergenerational approach differences in evaluating levels of job satisfaction and organizational commitment (17).

Members of Generation Y born between 1980 and 2000 make up 35% of the total population in Turkey. Qualities associated with Generation Y are optimism, high level of confidence, entrepreneurial approach and technology savviness (18, 19). It is observed that members of Generation Y can combine collaboration and teamwork and prefer to behave freely while doing their job, to do it in their own way and to be flexible in all matters (18, 19). They also have expressed a preference for quick feedback and reward processes (20). Managers and hospital administrators are advised to adopt working practices and policy and administrative tools in order to maintain high level of organizational commitment and loyalty of employees. Such practices include flexible working hours, trainings on recent technologies, frequent feedback mechanisms and a strong communication network (20).

In the process of evaluating healthcare employees' levels of job satisfaction and organizational commitment, managers and administrators in hospitals should consider a variety of factors and issues including pay and benefits, nature of the job, existence of a communication network, structure of decision-making processes as well as hospital culture, educational level and quality of management. It is increasingly important for managers to undertake this evaluation taking into account of the needs of new generation entering into workforce. The aim of the present study is to focus on the perceptions of Generation Y healthcare employees and assess whether a substantive relationship exists between levels of job satisfaction and organizational commitment. The study also seeks to determine whether variables such as gender, educational level, length of employment within the hospital, length of employment within profession, job title, nature of shifts and gender of manager substantively affect job satisfaction and organizational commitment. The indicators and factors affecting job satisfaction and organizational commitment can be incorporated into the managements' strategic human resources planning and adaptation in Turkey. Thereby, hospitals and healthcare management can better be prepared to accommodate and integrate Generation Y employees into their workforce.

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Methods

Design and sample

This cross-sectional study was conducted at a private hospital operated by a healthcare group located in Istanbul, Turkey from December 10, 2019 to January 10, 2020. Out of the 305 employees who received the questionnaire, 236 healthcare employees participated in the study. The study used a questionnaire with three main sections. The first section collected demographic data on gender, educational level, length of employment within the hospital, length of employment within profession, job title, nature of shifts and gender of manager.

The study protocol was approved by the Acıbadem University and Acıbadem Health Institutions Medical Investigation Ethics Committee (December 5, 2019; No. 2019-19/34). The study was conducted in accordance with the principles of the Declaration of Helsinki. In addition, each participant provided written informed consent to participate in the study.

Instrumentation

The organizational commitment levels of participants were assessed using the Organizational Commitment Scale created by Meyer and Allen (21). The scale evaluated participants' attitudes on topics such as the option to leave organization, the feelings of belonging and gratitude, and the relationship with superiors. Participants were asked to choose an option that best aligned with their views. Responses were recorded using a five-point Likert scale, scored as 1: Strongly disagree, 2: Disagree, 3:Undecided, 4: Agree, 5: Strongly agree. Scores closer to 1 stand for lower levels of organizational commitment, whereas scores closer to 5 illustrate higher levels of organizational commitment. The internal reliability coefficient of the scale was found to be less than 0.70. This indicates a reliable level of internal value (Cronbach alfa>0,70).

The job satisfaction levels of participants were assessed using the Minnesota Job Satisfaction Scale developed by Weiss, England, David and Lofguist (22). The statements assessing job satisfaction levels were based on factors such as salary, working conditions, opportunities for promotion, flexible working, participation and feedback. Responses from participants were recorded using a five-point Likert scale, termed 1: Strongly disagree, 2: Disagree, 3:Undecided, 4: Agree, 5: Strongly agree. Scores closer to 1 stand for lower levels of job satisfaction, whereas scores closer to 5 illustrate higher levels of job satisfaction. The internal reliability coefficient of the scale was likewise found reliable (Cronbach alfa>0,70).

Data analysis

The data was analysed using SPSS (Statistical Package for Social Sciences, version 18.0). In the calculation of job satisfaction and organizational commitment scores: credibility, correlation and simple regression analysis were used. Our descriptive data was expressed in mean ± standard deviation (SD), median (min-max), or number and frequency tables. Pearson coefficient and simple regression analysis was employed to test the relationship between job satisfaction and organizational commitment. A p value of < .05 was considered statistically significant.

Results

This section discusses the study findings by reference to tables and figure derived from our statistical analyses.

Table 1 demonstrates demographic data of participants. Of the 235 participants, the majority of participants were women (176, 74.9%) and medical secretaries/patient relations officers (93, 40.97%). The remaining participants were nurses (53, 23.35%), physicians (16, 7.05%), midwives (0.44%), laboratory assistants (0.88%), healthcare staff (1.76%) and others. 50 (21.4%) of the participants held a high school diploma; 75 (32.4%) graduated from an associate degree program; 85 (36.3%) graduated from college; 19 (8.1%) had a master's degree; and five participants (2.1%) had a doctorate degree.

Among all participants, the length of time spent in the profession ranged from 1 to more than 16 years. Of the 231 participants, 19 (8.1%) worked for less than a year, 114 (49.4%) worked between 1-5 years; 63 (27.3%) for 6-10 years; 27 (11.7%) for 11-15 years; and 8 (3.5%) for more than 16 years. In relation to the number of years spent in current workplace, 112 (62.9%) worked for 0-5 years; 48 (27.0%) for 6-10 years; 10 (5.6%) for 11-15 years; three (1.7%) for 16-20 years; and five (2.8%) for 21 years and above. Similarly, regarding the number of years spent in the current workplace, 113 participants (48.3%) noted that they worked in the current workplace for 1-5 years, 49 (21%) for 6-10 years, 52 (22.3%) for less than a year, 18 (7.7%) for 11-15 years and one participant (0.4%) worked for more than 16 years. Most participants reported that they worked shifts in daytime (72.53%), while 16 worked only night-time shifts (16%) or rotated between both (20.60%). Majority of the participants (61.5%) reported they had female managers, while 38.5% took orders from male managers.

Table 1. Distribution of the demographic characteristics of participants		*ƒ*	%
Gender	Female	176	74.9
	Male	59	25.1
Total		235	100
Education level	High school	50	21.4
	Associate degree	75	32.1
	College	85	36.3
	Master's	19	8.1
	PhD	5	2.1
Total		234	100
Length of employment within the profession (years)	< 1 year	19	8.1
	1-5 years	114	49.4
	6-10 years	63	27.3
	11-15 years	27	11.7
	> 16 years	8	3.5
Total		231	100
Length of employment within the hospital (years)	< 1 year	52	22.3
	1-5 years	113	48.5
	6-10 years	49	21
	11-15 years	18	7.7
	> 16 years	1	0.4
Total		233	100
Shift patterns	Day	169	72.53
	Night	16	6.87
	Day-Night	48	20.60
Total		233	100
Job title	Nurse	53	23.35
	Healthcare staff	4	1.76
	Midwife	1	0.44
	Physician	16	7.05
	Laboratory assistant	2	0.88
	Emergency technician	8	3.52
	X-ray technician	1	0.44
	Medical secretary/Patient relations officer	93	40.97
	Other	49	21.59
Total		227	100
Gender of manager	Female	144	61.5
	Male	90	38.5
Total		234	100

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Table 2 illustrates the result of the Pearson correlation test between job satisfaction and organizational commitment among Generation Y healthcare employees. Accordingly, out of the 235 healthcare employees, Table 2 illustrates the average score for job satisfaction (X=3.55) and for organizational commitment (X=3.48). According Alpar (2011), a finding of the correlation coefficient (r) greater than 0.4 showed a "mid-level relationship", greater than 0.7 reveals a "strong (high relationship) and greater than 0.9 demonstrates a "very strong relationship" (Alpar, 2011). In this study, we observed a mid-level relationship between all variables (r>0.4).

Table 3 provides the variance values between the variables, namely job satisfaction (predictive variable) and organizational commitment (predicted variable). There was a statistically significant relationship between job satisfaction and organizational commitment (R=0.719, R2 = 0.517).

Table 4 contains the result of the simple regression model assessing the significance of the relationship between the variables. It found that job satisfaction positively affects organizational commitment (B= 0,657, t=15,794, p<0,05). As p value here is less than 0.05 (p=0.00), this demonstrates the statistical significance of the R value at R= 0.719.

Table 2. Relationship between Participants' Job Satisfaction and Organizational Commitment								
		Intrinsic Sat.	Extrinsic Sat.	Overall Sat.	Emotional connection	Continual connection	Normal connection	**Overall Con.**
Intrinsic Sat.	r	1	.832	.950	.589	.577	.611	.683
	p		.000	.000	.000	.000	.000	.000
	N	235	235	235	235	235	235	235
	Ẋ	3.72						
Extrinsic Sat.	r	.832	1	.964	.557	.607	.643	.693
	p	.000		**.000**	.000	.000	.000	.000
	N	235	235	235	235	235	235	235
	Ẋ		3.39					
Overall Sat.	**r**	.950	.964	1	.597	.619	.656	.719
	p	**.000**	**.000**		**.000**	**.000**	**.000**	**.000**
	N	235	235	235	235	235	235	235
	Ẋ			3.55				
Emotional Con.	r	.589	.557	.597	1	.484	.669	.839
	p	.000	.000	.000		.000	.000	.000
	N	235	235	235	235	235	235	235
	Ẋ				3.76			
Continual Con.	r	.577	.607	.619	.484	1	.734	.840
	p	.000	.000	.000	.000		.000	.000
	N	235	235	235	235	235	235	235
	Ẋ					3.35		
Normal Con.	r	.611	.643	.656	.669	.734	1	.923
	p	.000	.000	.000	.000	.000		.000
	N	235	235	235	235	235	235	235
	Ẋ						3.33	
Overall Con.	**r**	.683	.693	.719	.839	.840	.923	1
	p	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	
	N	235	235	235	235	235	235	235
	Ẋ							3.48

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Table 3. The Amount and Total Explained Variance Value of the Relationship between Variables				
Model	R	R²	Adjusted R²	Standard Error of the Estimate
1	.719	.517	.515	.51586

Table 4. Simple Linear Regression Analysis Results of Job Satisfaction and Organizational Commitment Scores					
	Non-standardized coefficients		Standardized coefficients	t	p
	B	Standard error	Beta		
Constant	1.145	.152		7.555	.000
Job Satisfaction	.657	.042	.719	15.794	.000

Dependent Variable= Organizational Commitment

Table 4 also provides the parameters associated with the simple regression model (constant, regression coefficient, beta values, t-test result for the significance of the regression coefficient). It was observed that fifty-two percent of the total variance in relation to the participants organizational commitment was explained by the participant's job satisfaction. The resulting linear regression model was as the following (Figure 1):

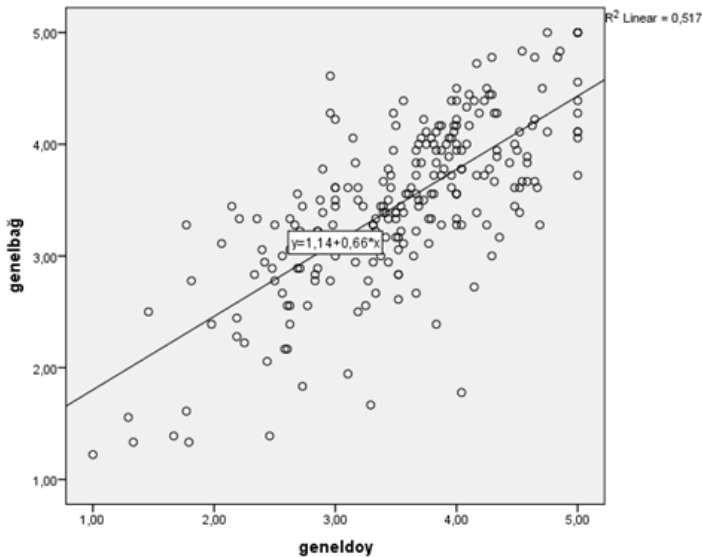Organizational Commitment *(Y) = 1,14 + 0,66 * Job Satisfaction (X)*

Figure 1. Scatter Plot Relation between General Commitment (X-axis) and Overall Satisfaction (Y-axis)

Discussion

Healthcare organizations are institutions that embody a high level of personnel diversity and professionalization. In this light, the concepts of job satisfaction and organizational commitment are among key factors in managing team dynamics in a workforce. The hospital administrations should develop a holistic approach to topics such as job satisfaction, organizational commitment, and organizational trust. The introduction of policies aimed at improving and enhancing these concepts among the workforce will likewise be important for maintaining work productivity.

The purpose of our study was to determine the relationship between job satisfaction and organizational commitment among Generation Y healthcare employees in Turkey. It sought to detect problems arising from intergeneral differences and, in turn, offer solutions to some widespread problems.

Significantly, the study concluded that the levels of job satisfaction levels among healthcare employees positively impacted organizational commitment and this relationship was strong (r=0,719; p<0,05) (Table 3). Our findings in the regression analysis based on the factors above determined that job satisfaction positively affects the level of organizational commitment (B = 0.657, t = 15.794, p <0.05) as the regression model was found to be Organizational Commitment (Y) = 1,14 + 0,66 * Job Satisfaction (X). Another significant finding was that 52% of the total variance related to the organizational commitment of the employees was explained by the job satisfaction variable. In simple regression analysis, this effect level obtained with a single independent variable was high, showing that organizational commitment is a crucial factor on job satisfaction.

The study also revealed that as job satisfaction levels increase, healthcare employees tended to perceive their work as safer. As job satisfaction is one of the primary factors that motivate an individual towards productivity, individuals with high level of job satisfaction are more productive at work and contribute to greater profitability in hospital.

The managers should make most of the experiences of senior workers as well as the creative, idealist and innovative approaches of younger generations. In the process of decision-making, the employers should take into account of Generation Y workers' opinions and views with an

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aim to increase their job satisfaction and organizational commitment. Arrangements should be made for sport, excursions and cultural activities for those Generation Y workers who wish to spend time for social activities outside of work. In addition, considering that the perception of job satisfaction increases together with the socio-economic levels of the employees, employers should not forget that the financial and moral support, such as increase in wages, financial awards, advances, bonuses etc., provided to employees is likely to increase their job satisfaction.

To this end, similar studies have been conducted on different samples and profiles of healthcare employees. These studies have produced similar results to our study. For example, Gemlik, Ilter and Bektas (2018) assessed the expectations of Generation Y managers in a public hospital in Istanbul (23). The participants also expressed a preference for a workplace that is fair, just and motivating and superiors who share their experience with them. Moreover, factors such as innovation, opportunities for self-development, respect from others, opportunities to participate or give opinions during decision-making processes, approval by and support from superiors were included among their preferences (23).

Similarly, Sencan, Aydintan and Yegenoglu (2017) found a significant and positive relationship between organizational commitment and job satisfaction of managers in a survey conducted on 98 executives that work in pharmaceutical companies (24). In other words, the study observed that as organizational commitment increases along with an increase in job satisfaction (24). With respect to levels of job satisfaction among nurses in a state hospital in Turkey, Tilev and Beydağ (2014) reported that job satisfaction levels differed according to the units and working hours of nurses, while job satisfaction did not differ according to age or gender (25). In Top's study (2012) in five state teaching and research hospitals in Istanbul on 304 physicians (12.54% of total physicians) and 254 nurses (15.38% of total nurses), a strong and significantly positive relationships was found between organizational commitment, job satisfaction and organizational trust physicians and nurses (26).

Regarding the organizational commitment and job satisfaction levels of nurses and medical secretaries, Gider, Simsek, Ocak and Top (2011) observed that both job satisfaction levels of nurses and medical secretaries differ significantly according to their profession, income status and the type of hospitals (27). In addition, the study detected a statistical relationship between job satisfaction and the total working years in the hospital (27). Lastly, a significant relationship was found between the job satisfaction perceived by nurses and medical secretaries and their organizational commitment (r = 0.597, p = 0.000; p <0.005) (27).

Lastly, Karahan (2008) conducted a study on 321 healthcare workers with different job titles in Afyonkarahisar State Hospital in order to determine whether the leadership characteristics of managers exert any influence on the organizational commitment of the employees in hospitals (28). The study confirmed the existence of significant relationships between leadership type and organizational commitment and found that the factor of leadership effects the levels of organizational commitment among the workers in a positive manner (28). Likewise, Tengilimoğlu and Yiğit (2005), in their study on the effects of leadership behaviours on job satisfaction of 355 medical professionals working at Tokat Cevdet Aykan State Hospital, determined that four types of leadership styles had a positive effect on job satisfaction (29).

The main limitation in the present study was caused by the design of the model, namely the study was limited to a single dependent variable and it solely examined the relationship between job satisfaction and organizational commitment. The results of the present study can be supported with different samples, studies, and models looking at different organizational dynamics in order to increase the generalizability of the results. Moreover, the impact of organizational commitment on job satisfaction could be studied, as well as specific indicators and their effects on job satisfaction and organizational commitment.

It is vital for hospital administrators and managers to put in place systematic reviews for the assessment levels of job satisfaction and organizational commitment of their employees. In addition, they should acknowledge the need for developing specific and effective strategies to improve the perceptions of incoming Generation Y employees. As this study demonstrated, the concepts of job satisfaction and organizational commitment are intrinsically related to and impacted by issues such as the opportunities for participation in decision making processes, transparent and fair leadership, employee needs, employee support and encouragement and leadership styles. As shown, researchers have made persuasive arguments showing that high level of job satisfaction leads to high level of organizational performance, and it helps to improve hospital's performance, profitability and the quality of patient care.

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Conclusions

This study showed a strong and positive relationship between job satisfaction and organizational commitment among Generational Y healthcare employees in Turkey. The results were in line with previous studies conducted on other groups of healthcare professions. The productivity and effectiveness of inter-generational teams depend on a closer understanding of expectations and values of each generation. The needs of Generation Y healthcare employees include the opportunities for self-development, participation in the decision-making processes, wish to be respected and inclusion in mechanisms allowing for intergenerational experience and skills sharing and frequent feedback. These characteristics should be taken into account by management for the purposes of maintaining a high level of job satisfaction and organizational commitment and a high hospital performance.

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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

The Impact of Paternalistic Leadership Behaviour on Organizational Trust among Healthcare Professionals

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ABSTRACT

Objective: The aim of the current study was to investigate the impact of paternalistic leadership on organizational trust among healthcare professionals. As a starting point, it acknowledges that the impact of paternalistic leadership may vary depending on the cultural values of a given society. The study then offers the regression model between the variables among with implications of this relationship for healthcare management.

Methods: A questionnaire-based cross-sectional study and face-to-face interviews were conducted at a private hospital group in Istanbul. The study sample encompassed 329 employees. In data analysis and evaluations, frequency tables, central and prevalence criteria, Pearson's correlation test and simple linear regression analysis were employed and analysed with the SPSS 20 statistical package program.

Results: A statistically significant and positive correlation was found between paternalistic leadership behaviour and organizational trust ($r = 0.669$, $p = 0.000$; $R^2 = 0.448$). The analysis indicated that paternalistic leadership behaviour explained about 45% of the variance in organizational trust.

Conclusion: In study, it was found that paternalistic leadership behaviours are strongly related to organizational trust among healthcare professionals. Paternalistic leadership, particularly in collectivist cultures with high power-distance structures, may yield to positive organizational outcomes.

Keywords: Paternal leadership, leadership, organizational trust

Sağlık Çalışanlarında Paternalist Liderlik Yaklaşımının Örgütsel Güven Üzerindeki Etkisi

ÖZET

Amaç: Sağlık çalışanlarında paternalist liderliğin örgütsel güven üzerindeki etkisini araştırmaktır. Başlangıç noktası olarak, paternalist liderliğin etkisinin toplumun kültürel değerlerine bağlı olarak değişebileceği kabul edilmiş ve bu ilişkinin sağlık yönetimi üzerindeki etkileri ile birlikte değişkenler arasındaki regresyon modelini sunmak amaçlanmıştır.

Yöntem: Araştırma, İstanbul ilinde faaliyet gösteren ve kolayda örnekleme yoluyla belirlenen bir özel grup hastanesinde gerçekleştirilmiştir. Veri toplama aracı olarak anket kullanılmış ve katılımcılara yüz yüze görüşme yoluyla uygulanmıştır. Araştırmanın örnekleminde, araştırmaya katılmayı kabul eden 329 çalışan yer almaktadır. Veriler elektronik ortama aktarılarak, SPSS 20 istatistik paket programında analiz edilmiştir. Analiz ve değerlendirmelerde sıklık tabloları, merkezi ve yaygınlık ölçütleri, Pearson korelasyon testi ve basit doğrusal regresyon analizleri kullanılmıştır.

Bulgular: Elde edilen bulgulara göre, paternalist liderlik davranışı örgütsel güvenin %45'ini açıklamakta ve paternalist liderlik davranışı ile örgütsel güven arasında istatistiksel olarak anlamlı, pozitif yönde, kuvvetli ilişki bulunmaktadır ($r=0.669$, $p=0.000$; $R^2 = 0.448$).

Sonuç: Çalışmada, sağlık çalışanlarında paternalist liderlik davranışları ile örgütsel güven arasında güçlü bir ilişki olduğu bulunmuştur. Paternalist liderlik, özellikle yüksek güç mesafesi yapılarına sahip kolektivist kültürlerde, olumlu örgütsel sonuçlara yol açabilir.

Anahtar Kelimeler: Babacan Liderlik, liderlik, örgütsel güven

One of the leadership concepts that has recently come into focus in the past decades is paternalistic leadership. Silin (1976) proposed the concept of paternalistic leadership and the term 'paternalistic' indicates an idea where the leaders perceive their followers as children needing the protection, guidance and guidance of a father in professional and personal development (1, 2, 3). The employees are expected to trust and commit to their leaders and voluntarily follow their directions (3). Chen and others list three dimensions of paternalistic leadership as authority, benevolence and morality (4). Paternalistic leadership thus appears as an approach encapsulating discipline and authority as well as care and concern for employees.

Paternalistic leadership seems to be a valued approach in collectivistic cultures, compared to individualistic ones, where organizations are often formed in hierarchical structure with high power distance between the leader and employees (3, 5, 6). Aycan (2000, 2001) in her comparative studies on paternalistic leadership, ranked Turkey, China, India, Pakistan and Taiwan among countries with high collectivist cultures (7, 8). In recent years, there has been an increasing amount of literature focusing on the impact of paternalistic leadership on organizational dynamics in a workplace. For example, a positive impact of paternalistic leadership on employee performance and productivity (4, 9), job satisfaction (10, 11,12, 13), organizational citizenship (14), working morale (15), organizational justice (16), and positive work engagement behaviour are among many others (17). To the contrary, paternalistic leadership is not widely discussed in Western literature and the existing work tends to underscore negative aspects of this model with individualistic and low power distance observed in the Western societies (2, 18).

A concept strongly related to leadership is organizational commitment. Under the model put forth by Shockley-Zalabak and others (2000), organizational trust is the overarching belief that an organization in its behaviours and communication is competent, open and honest, concerned, reliable, and worthy of identification with its goals, norms, and values (19, 20). In the model developed by Bromiley and Commings (1996), organizational trust is referred to as the beliefs and expectations of employees from organizational relationships and behaviours, encompassing emotional, cognitive and behavioural dimensions (20, 21, 22). Anderson and others (2012) analysed organizational trust in five dimensions: organizational trust relates to the psychological state of the person, is linked to perceived experiences, refers to positive expectations about the organization and its members, involves actively taking risks, and is subject to change in any situation (23, 24).

As a concept, organizational trust is an essential component of organizational excellence in today's world (25). Recent studies analysing the relationship and impact of organizational trust have linked organizational trust to improved economic performance and the achievement of organizational goals (26), successful cooperation and effectiveness in organizations (27) as well as enhanced organizational learning (24). Thus, previous research emphasises the importance of organizational trust in the effective, equitable and efficient delivery of services, including in healthcare institutions.

The aim of the current study was to investigate the impact of paternalistic leadership approaches on organizational trust among healthcare workers. Since paternalistic leaders closely focus on the well-being and performance of employees in both their professional and personal life, it is plausible to expect the development of trust in leader-member interactions as well as the increase in organizational commitment. Previous studies support the conclusion that paternalistic leadership exerts a positive impact on a variety of dimensions related to organizations, ranging from work engagement to job satisfaction. Therefore, it may be argued that paternalistic leadership is also associated with organizational trust, particularly in collectivist cultures.

Materials and method

A questionnaire-based cross-sectional study was undertaken in a private hospital in the city of Istanbul operated by the largest private healthcare group in Turkey. The selection of the hospital was determined by a convenience sampling. The study sample included 329 employees. The participation was voluntary, and participants' answers were recorded anonymously. The questionnaire was administered to the employees through face-to-face interviews between 10 December 2019 and 10 January 2020. The study was approved by Acıbadem University and Acıbadem Healthcare Institutions Medical Research Ethics Committee (ATADEK) on 5 December 2019 with the decision of 2019-19/35.

The questionnaire consisted of three parts. The first part collected information on demographics and employee-related variables. This part included items concerning sex, age (6-point response scale; younger than 25 years, 26–35 years, 36–50 years, 40–49 years, 51–65 years, 66 years or

older), years of employment at the hospital (4-point response scale; less than a year, 2–4 years, 5–10 years, more than 11 years), years of employment in total (4-point response scale; less than a year, 2–4 years, 5–10 years, more than 11 years), job title/profession (9-point response scale; nurse, physician, healthcare officer, midwife, emergency medical technician, medical secretary and patient services professionals, laborant, x-ray technician and another position) and job rotation/shift (3-point response scale; day, night, day and night).

The paternalistic leadership perceptions of the participants were measured by the Paternalistic Leadership Scale developed by Aycan (2006) (5). The responses in this Scale were rated using a five-point Likert-type scale where high scores represent employees who perceived high paternalistic leadership behaviours in their leaders (1 = strongly disagree to 5 = strongly agree). The Cronbach's alpha coefficients of both scales were determined as high (Cronbach alpha> 0.70).Organizational trust was measured by the Organizational Trust Scale. This scale was developed by Bromiley and Cummings (1996) and later translated into Turkish by Tüzün (2006) in an unpublished doctoral dissertation (21). Each item was rated using a seven-point Likert-type scale where high scores represent employees who possess higher levels of organizational trust to the institution (1 = strongly disagree to 7 = strongly agree).

Descriptive data were analysed, and reliabilities were computed for organizational trust and paternalistic leadership perceptions. The data was scrutinised using Pearson correlation and hierarchical linear regression analysis to assess the association between organizational trust and paternalistic leadership perceptions. Furthermore, the study employed frequency tables and the central prevalence criteria. The significance level was set at 5% and the confidence interval at 95%. Data management and analysis was performed using SPSS 20.0.

Results

The sample (n = 328, 72.3% females and 27.7% males) consisted of 14.7% nurses, 43.8% medical secretaries and patient services officers and 11.3% physicians. Thirty-seven per cent were younger than 25 years, 39% were between 26 and 35 years and 23.8% were 36 years or older. Twenty-seven per cent had less than 1 year of employment at the hospital, 35.8% between 2 and 4 years, and 26.9% between 5 and 10 years, and 10.7% had more than 11 years of employment. With respect to total years of employment, 13.8% had less than 1 year of employment in total, 30%

between 2 and 4 years, and 32.7% between 5 and 10 years, and 23.5% had more than 11 years of employment. Eighty-three per cent worked on dayshifts, 6.4% on night shifts and the remaining 10% worked on both day and night shifts. Fifty-eight per cent worked with female managers as their leader, and 42% worked with male managers (Table 1).

The median values in Table 2 yielded to the organizational trust score averages of the participants at $\dot{X} = 5.23$ and to mean scores of paternalistic leadership behaviour as $\dot{X} = 3.60$.Results of the Pearson's r analysis yielded that there was a significant, positive correlation between the organizational trust and paternalistic leadership behaviours among healthcare workers (p <0.01). Accordingly, a positive and moderate relationship was observed between paternalistic leadership and organizational trust (r = 0.67) (Table 3).

The results of the regression analysis in Table 4 demonstrated that paternalistic leadership behaviour positively affects the organizational trust level (B = 1.061, t = 16.594, p <0.05). Forty-five per cent of the total variance regarding the organizational trust level of the employees was explained by the paternalistic leadership behaviour (R^2 = 0.448).Consequently, the results indicated that paternalistic leadership behaviour is a statistically significant predictor of organizational trust variable. Moreover, the linear regression model was determined as follows:

Organizational Trust (Y) = 1.42 + 1.06 * Paternalistic Leadership (X)

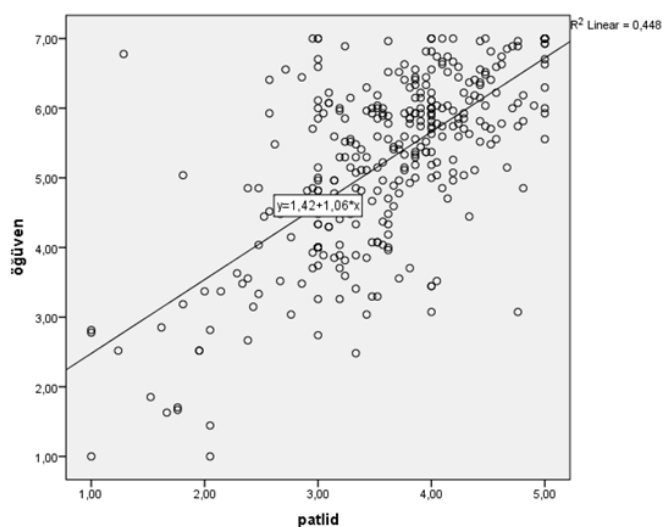Figure 1. Scatter Plot Relation between Organizational Trust (Y) and Paternalistic Leadership Behaviour (X)

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Table 1. Distribution of the demographic characteristics of participants		f	%
		f	%
Gender	Female	237	72.3
	Male	91	27.7
Total		328	100
Age	18-25	122	37.2
	26-35	128	39.0
	36-50	59	18.0
	51-65	18	5.5
	66 and over	1	0.3
Total		328	100
Education	High school	70	21.5
	Associate degree	102	31.3
	College	107	32.8
	Master's	27	8.3
	PhD	20	6.1
Total		326	100
Number of years spent in the profession	< 1 year	45	13.8
	2-4 years	98	30.0
	5-10 years	107	32.7
	>11 years	77	23.5
Total		327	100
Number of years spent in the current workplace	< 1 year	87	26.6
	2-4 years	117	35.8
	5-10 years	88	26.9
	>11 years	35	10.7
Total		327	100
Shift patterns	Day	274	83.5
	Night	21	6.4
	Day-Night	33	10.1
Total		328	100
Job title	Nurse	47	14.7
	Healthcare staff	3	0.9
	Midwife	3	0.9
	Physician	36	11.3
	Medical secretary/ Patient relations officer	140	43.8
	Laborant	1	0.3
	Emergency tecnician	7	2.2
	X-ray technician	1	0.3
	Other	82	25.6
Total		320	100
Gender of manager	Female	183	57.9
	Male	133	42.1
Total		316	100

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Table 2. Relationship between Organizational Trust and Paternalistic Leadership Behaviour under the Pearson correlation test				
			Organizational Trust	Paternalistic Leadership Behaviour
Organizational Trust	r	1	.669
	p		.000
	N	341	341
	Ẍ	5.23	
Paternalistic Leadership Behaviour	r	.669	1
	p	.000	
	N	341	341
	Ẍ		3.60

Table 3. The amount and total explained variance value of the relationship between variables				
Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	.669a	.448	.447	.93331
**p<0,01				

Table 4. Simple linear regression analysis results of organizational trust and paternalistic leadership behaviour					
	Non-standardized coefficients		Standardized coefficients	t	p
	B	Standart error	Beta		
Constant	1.418	.235		6.024	.000
Paternalistic leadership behaviour	1.061	.064	.669	16.594	.000
Dependent Variable= Organizational Trust					

Discussion

The present study shows that paternalistic leadership behaviour positively influences organizational trust among healthcare workers (B = 1.061, t = 16.594, p <0.05). This positive association was moderate(r = 0.669; p <0.05) (Table 3). The regression model provided as Organizational Trust (Y) = 1.42 + 1.06 * Paternalistic Leadership (X).Significantly, 45% of the total variance in the level of organizational trust was explained by paternalistic leadership behaviour. This level of effect obtained with a single independent variable was quite high. In other words, it is expected that when healthcare managers display paternalistic leadership behaviour, employee's perceptions of organizational trust increases.

While the association between paternalistic leadership behaviour and organizational trust has not been reported widely in the literature, the studies have reported the associations between paternalistic leadership and employee performance and productivity (4, 9), job satisfaction (10, 11, 12, 13), organizational citizenship (14), working morale (15), organizational justice (16), and positive work engagement behaviour (17). For example, in a cross-sectional Turkish study among 683 healthcare workers, Nal and Tarım (2017) found significant and positive correlation between paternalistic leadership behaviours and job satisfaction among healthcare workers(β=530, t=16,322, p<0,01) (12). In a Turkish study among employees working in banking, insurance, health, education and service sectors, Erben and Güneşer (2008) found a significant and positive relationship between ethics and benevolent paternalistic leadership (28).

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The results of Turkish studies seem to be supported by the results achieved in studies done in other collectivist cultures with high power-distance, such as China, Korea and Taiwan (7, 8). A Chinese study by Cheng and others (2004) in the healthcare sector reported that paternalistic leadership behaviouralso guided employees to develop the sense of benevolence in the society (29).Poaching and Chichun (2009) observed that paternalistic leadership behaviour positively impacts organizational citizenship. The present findings seem to be consistent with these studies (14). The present study observed that the increase in organizational trust leads to the increase in work productivity and a trust relationship between employees with their managers, institution and colleagues.In collectivist cultures with high power-distance, membersare perceived toseek protection, support, proximity and attention from their leaders (3, 5, 8). The paternalistic leadership yields effective results because the paternal leaders with a focus on the emotional and professional needs of their followers, seek to provide solutions to all their problems. Paternal leaders are expected to develop methods to ensure employee loyalty and organizational belonging. Through adopting benevolence in their approach and standing as mentor and a role model, paternalistic leaders display exemplary experience for their employees, and consequently earn organizational trust, as well as achieving greater productivity, work engagement and job satisfaction (24, 26).

One practical implication from the present study is that paternalistic leadership approaches in the healthcare sector in Turkey positively impact organizational trust and dynamics, therefore can be an effective management tool in the healthcare industry, particularly in high pressure periods. During the course of the global pandemic on COVID-19, healthcare workers are placed under greater pressure and have been experiencing professional burnout. The paternalistic leadership approaches employed by the management, where leaders consistently show interest in the well-being of their employees (13), may deepen the trust in the organization and, therefore, result in improved economic performance and the achievement of organizational goals, effective cooperation between members as well as enhanced organizational learning.

As for the limitations of the present study, first, although the study was conducted on a large sample, it was limited to a single dependent variable. This implies that organizational dynamics could be further analysed using different variables, models and studies. Secondly, the generability of the current study may be limited. The results may also be culture specific, depending on the collectivist-individualist cultures and power-distance in different societies. Thus, it is suggested that future studies should examine the importance of paternalistic leadership behaviour on organizational commitment across a broad range of health-care organizations in other cultures andcountries and among a broad range of employee groups.

Conclusion

The current study concluded that paternalistic leadership behaviour positively influences organizational trust among healthcare workers, and this relationship was moderate. Paternalistic leaders closely focus on the well-being and performance of employees at work and in their personal lives. It is argued that, in countries with collectivist cultures and high power-distinctions, the interactions between leaders and members under the paternalistic leadership model leads members to develop positive beliefs with respect to organizational relationships and behaviours.

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Assessment of Mobbing and Job Satisfaction Relationship in Nurses: A Systematic Review and Meta-Analysis

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ABSTRACT

Aim: The aim of this study to examine the perceived mobbing levels, and to look into the relationship between mobbing and job satisfaction of nurses working in Turkey through a meta-analysis.

Methods: This systematic review and meta-analysis is based on the Joanna Briggs Institute guidelines. A total of 850 studies on perceived mobbing levels, and 50 studies on the relationship between mobbing and job satisfaction were retrieved from databases which are Ulusal Tez Merkezi, DergiPark, PubMed, EBSCO Host, and Web of Science. The articles and dissertations were written in Turkish and English and published before December 31, 2018. The PRISMA statement was used to report systematic review and meta-analysis.

Results: The perceived mobbing level was found to be 1.867, and a negative and medium-level relationship was observed between mobbing and job satisfaction in nurses who work in Turkey (r = -.510, p = .000).

Conclusions: The perceived mobbing level, according to the meta-analysis, were found to show that nurses are exposed to a high degree of mobbing behavior in Turkey. The relationship between mobbing and job satisfaction showed a negative and moderate correlation. In other words, as the mobbing level increases, the job satisfaction level decreases.

Keywords: nurses, job satisfaction, systematic review, meta-analysis

Hemşirelerde Mobbing ve İş Tatmini İlişkisinin Meta Analiz Yöntemiyle İncelenmesi

ÖZET

Amaç: Bu çalışmanın amacı, algılanan mobbing düzeylerini incelemek ve Türkiye'de çalışan hemşirelerin mobbing ile iş tatmini arasındaki ilişkiyi meta-analiz yöntemiyle incelemektir.

Metot: Bu sistematik inceleme ve meta-analiz Joanna Briggs Institute yönergelerine dayanmaktadır. Ulusal Tez Merkezi, DergiPark, PubMed, EBSCO Host ve Web of Science veri tabanlarından algılanan mobbing düzeyleri ile ilgili toplam 850 çalışma ve mobbing ile iş doyumu arasındaki ilişkiye yönelik 50 çalışmaya ulaşılmıştır. Türkçe ve İngilizce olarak yazılmış olan ve 31 Aralık 2018 tarihinden önce yayımlanmış makale ve tezler çalışmaya dahil edilmiştir. PRISMA ifadesi, sistematik inceleme ve meta-analizi bildirmek için kullanılmıştır.

Bulgular: Algılanan mobbing düzeyi 1.867 olarak bulunmuş ve Türkiye'de çalışan hemşirelerde mobbing ile iş doyumu arasında negatif ve orta düzeyde bir ilişki olduğu görülmüştür (r = -.510, p = .000).

Sonuç: Meta-analiz sonuçlarına göre Türkiye'de hemşirelerin yüksek derecede mobbing davranışına maruz kaldığı görülmüştür. Mobbing ile iş doyumu arasındaki ilişki, negatif ve orta düzeyde bir korelasyon göstermiştir. Bu da, mobbing seviyesi arttıkça iş doyumu seviyesinin düştüğünü göstermektedir .

Anahtar Kelimeler: hemşireler, iş tatmini, sistematik inceleme, meta-analiz

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Negative factors such as bad management, gossip, workplace conflicts experienced in the workplace are an important problem for employees. Nowadays, an employee spends most of his/her time in the workplace and is in a business environment (1) with his/her colleagues even more than with family members. Therefore, a healthy, comfortable, and psychologically comfortable work environment becomes more important for the working individual (2). Many studies have shown that mobbing in the workplace has a negative effect on job satisfaction (2-7).

Leymann (8) defines mobbing as a "hostile and unethical form of communication systematically implemented by one or more people." In order for negative behaviors to be defined as mobbing, such behaviors must be repeated for at least six months and at least once a week. In literature, there are many definitions of mobbing. According to the points that these definitions have in common, mobbing is a repetitive and long-term negative behavior with a power imbalance between the chosen victim and the mobbing practitioner, leaving negative effects on the victim (8-13).

Due to the nature of the health sector, long-term (sometimes without work opportunities), intense, and uncomfortable work environments create more occupational risks than in other jobs (14). Although mobbing is an important risk factor for all occupational groups, it is especially common in the health sector (15-16). Due to the nature of the health sector, long-term (sometimes working without the opportunity to rest), intense and uncomfortable working environment creates more occupational risks than other jobs (14). Among the reasons for the high rate of mobbing in health institutions are; Working conditions, discrimination among patients, high number of patients, salary, shifts, not being able to spare time for family and friends in line with working conditions can be counted (17). Within health sector, nurses are those who are most exposed to mobbing (18). As a result of nurses working in environments with high levels of mobbing, their stress levels increase, their physical and psychological health fail to function properly, and, consequently, they fail to fulfill their responsibilities, their productivity decreases, and institutional functioning deteriorates (19).

Job satisfaction is defined as an effective sensation that develops based on an individual's expectations, their personal characteristics, and the interaction between employeyss (20). Low job satisfaction reduces the quality of work, negatively influences the social, emotional, and physical health of an employee, and causes the employee to be alienated from the job (21).

As health workers contribute to the important issue of human life, employees need to do their jobs effectively and efficiently. This depends on a high level of job satisfaction of employees (22). According to Kavak (23) if employees are mobbed, job satisfaction levels and the productivity of employees decrease.

The aim of this study is to examine the perceived mobbing levels, and to look into the relationship between mobbing and job satisfaction of nurses working in Turkey through a meta-analysis.

In this research, the answers to the following questions are sought:

1. What are the perceived mobbing levels of nurses who work in Turkey?

2. What is the level of the relationship between mobbing and job satisfaction in nurses who work in Turkey?

METHOD

Design
After gathering quantitative studies on perceived mobbing level and the relationship between mobbing and job satisfaction, a coding method was developed to convert categorical variables from appropriate studies to be included in the study. The appropriate studies were selected based on the subject of the research, the sample group, the scale used and the availability of sufficient data. The features to be coded had to have a property that would affect the effect size. The studies included in the meta-analysis had to be coded clearly and in detail (24). The form that constituted the coding method consisted of three sections:

- Study ID: This section contained the name(s), number(s), and author(s) of the research; the year and place of research; and the type of study.

- Study Content: This section contained information about the sample and the applied scale.

- Study Data: In this section, perceived mobbing level averages of the nurses, correlation values, and sample numbers were included.

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The studies to be included in the study were also checked according to the "Systematic Screening and Research Synthesis Checklist" prepared by the Joanna Briggs Institute (25) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (see Supplementary File 1).

Since this is a meta-analysis study, ethics committee approval was not required.

Search Method

The online databases of Ulusal Tez Merkezi, DergiPark, PubMed, EBSCO Host, and Web of Science were searched. To acquire published studies thematic to perceived mobbing levels, and mobbing and job satisfaction, the search included studies that were published before December 31, 2018. See Table 1 and Table 2 for search strategies.

Table 1. Literature search strategy for general mobbing perception		
Database	Search terms	Number of Articles
Ulusal Tez Merkezi	nurse* and mobbing*	558
DergiPark	nurse* and mobbing*	265
PubMed	nurse* and mobbing*	15
Web of Science	nurse* and mobbing*	7
EBSCO Host	nurse* and mobbing*	5
Duplicates removed		15
Studies retained after both review (YES articles)		6
FINAL study selection (after quality assessment)		6
*Signifies that any word beginning with this term would be included in the search **The scope of the search for all databases, was 01.01.1996-31.12.2018		

Inclusion and Exclusion Criterias

The criteria used for the studies included in the research were as follows:

- Criterion 1: Time interval: The study was conducted between 1996 and 2018.

- Criterion 2: Source: Refereed/non-refereed journal articles, master theses, and doctoral theses published in selected databases.

- Criterion 3: Appropriate research method in the studies: In order to reach the influence quantity, it was foreseen that the studies to be included should be empirical studies and have branch, gender, and nurse groups.

- Criterion 4: Sufficient numerical data in the studies: Descriptive numerical data were needed to calculate the influence quantity.

The criteria identified for the studies not included in the study were as follows:

- Criterion 1: Congress presentations and announcements.

- Criterion 2: Data previously used in another study (studies converted from a thesis to an article).

- Criterion 3: Lacking in the statistical data required for the meta-analysis.

Table 2. Literature search strategy for relationship between mobbing and job satisfaction		
Database	Search terms	Number of Articles
Ulusal Tez Merkezi	nurse* and mobbing* and (job or work satifaction)	42
DergiPark	nurse* and mobbing* and (job or work satifaction)	4
PubMed	nurse* and mobbing* and (job or work satifaction)	2
Web of Science	nurse* and mobbing* and (job or work satifaction)	2
EBSCO Host	nurse* and mobbing* and (job or work satifaction)	0
Duplicates removed		2
Studies retained after both review (YES articles)		3
FINAL study selection (after quality assessment)		3
*Signifies that any word beginning with this term would be included in the search **The scope of the search for all databases, was 01.01.1996-31.12.2018		

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Search Selection and Outcomes

As a result of the systematic review, the electronic databases yielded 850 publications for perceived mobbing level and 50 publications for the relationship between mobbing and job satisfaction. Figure 1 and Figure 2 illustrate the search and extraction process. We manually found duplications, thus reducing the search results to 839 publications for perceived mobbing level and 48 publications for the relationship between mobbing and job satisfaction.

We then screened the titles and abstracts of all the records and identified 40 articles that potentially associated with perceived mobbing level and 14 articles that correlated with mobbing and job satisfaction. Following reviewing the articles, we included 6 out of the 40 publications for perceived mobbing level and 3 out of 14 publications for the relationship between mobbing and job satisfaction (see Table 3 and Table 4 for further details).
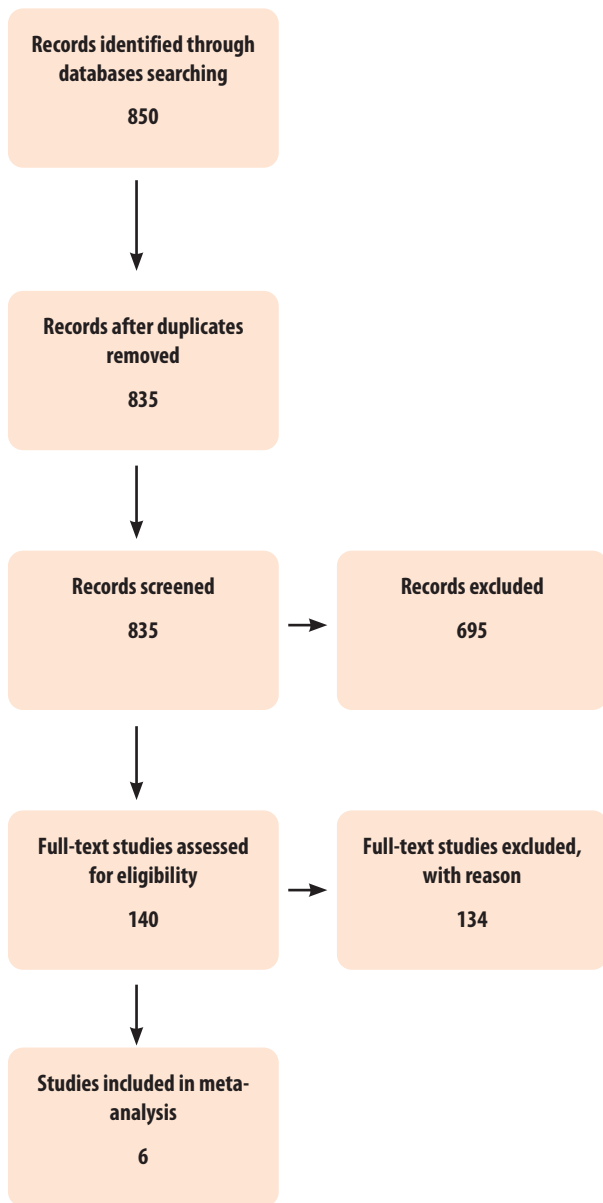

Figure 1. Number of studies to be included in general mobbing perception analysis as a result of systematic screening
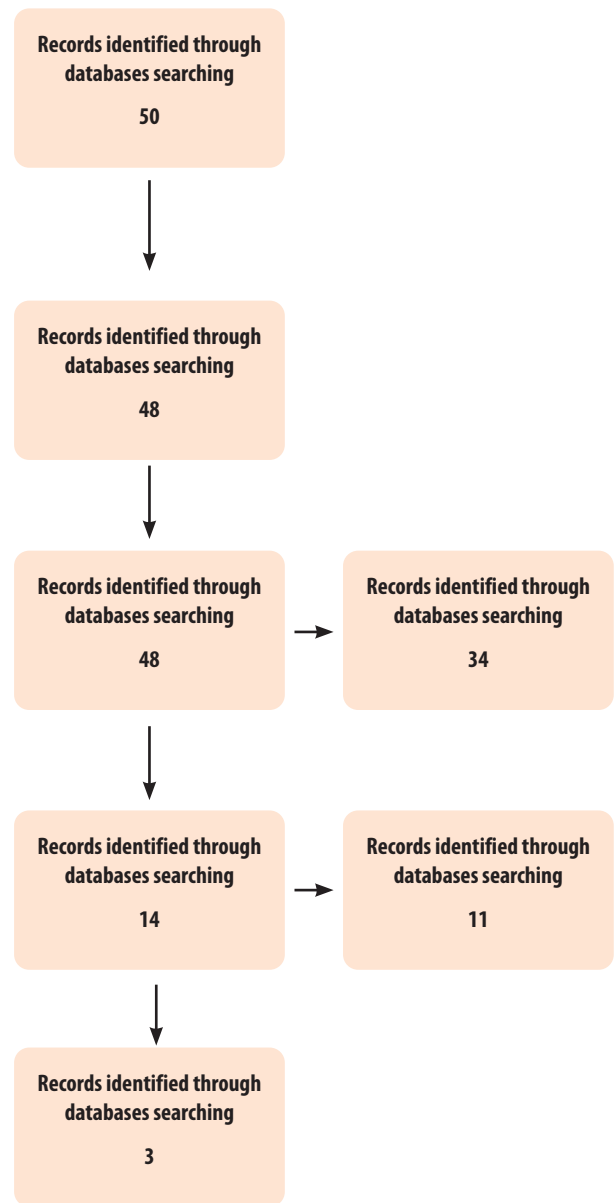

Figure 2. Number of studies to be included in the analysis of the relationship between mobbing and job satisfaction as a result of systematic screening

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Table 3. Study characteristics of general mobbing perception

Author(s) / Year	Study design	Aim	Subject	Measures	Reliability Cronbach α	Analysis
Alar Erkal (2012)	Cross-Sectional	To measure the level of mobbing perception and the relationship between the organizational structure and the perception of mobbing.	309 nurses	LIPT	0,9591	Correlation analysis, LSD Post Hoc test, ANOVA test
Gül ve Ağıröz (2011)	Cross-Sectional	To measure the level of mobbing perception, relationship between mobbing and organizational cynicism and its sub-dimensions and to contribute to the literature with quantitative findings based on research.	103 nurses	LIPT	0,962	Correlation analysis, Regression
Kılıçaslan ve Kaya (2017)	Cross-Sectional	To measure the level of mobbing perception, relationships between mobbing and its sub-dimensions and organizational cynicism and to contribute to the findings of organizational behavior literature.	117 nurses	LIPT	NO	Linear regression
Kovar (2018)	Cross-Sectional	To measure the level of mobbing perception, and determine the relationship between mobbing behaviors and organizational culture.	377 nurses	LIPT	0,960	Mann Whitney U test, Oneway ANOWA test, Tukey HSD test, Kruskal Wallis test Correlation analysis
Özdemir (2014)	Cross-Sectional	To measure the level of mobbing perception, and relationship between mobbing sub-dimensions and job satisfaction.	160 nurses	LIPT	0,951	T Test Correlation analysis
Talas (2018)	Cross-Sectional	To determine the relationship between mobbing and job satisfaction of nurses.	386 nurses	LIPT Minnesota Job Satisfaction Scale	0,94 0,94	Kologorov-Smirnov Regresyon OneWay ANOWA Pearson Correlation

Table 4. Study characteristics of relationship between mobbing and job satisfaction

Author(s) / Year	Study design	Aim	Subject	Measures	Reliability Cronbach α	Analysis
Akbaş, 2009	Cross-Sectional	To reveal the importance of mobbing in working life and the relationship between mobbing and job satisfaction.	177 nurses	LIPT Job Satisfaction Scale[1]	0,927 0,899	Correlation LSD Post Hoc ANOVA
Aydın (2012)	Cross-Sectional	To evaluate the effect of mobbing behaviors faced by nurses working at university hospital on job satisfaction and some variables (age, marital status, education level, seniority year, etc.).	301 nurses	Mobbing Scale[2] Minnesota Job Satisfaction Scale	0,92 0,84	Kruskal Wallis H Mann Whitney U Korelasyon Regresyon
Talas (2018)	Cross-Sectional	To determine the relationship between mobbing and job satisfaction of nurses.	386 nurses	LIPT Minnesota Job Satisfaction Scale	0,94 0,94	Kologorov-Smirnov Regresyon OneWay ANOWA Pearson Correlation
[1]James M.Comer, Karen A.Machleit and Rosemary Lagace, 1989 [2]Dilek Yıldırım and Aytolan Yıldırım, 2008						

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Quality Appraisal

All studies were screened for quality in accordance with the published "Quality Assessment and Validity Tool for Correlational Studies" (26). The research quality classified as high (10-14), medium (5-9), or low (0–4) using this tool. The tool consists of 13 questions and consists of a binary answer form in the form of not met or met. 12 questions are scored over 0 (= not met) and 1 (= met); 1 question is scored over 0 (= not met) and 2 (= met). The total of 13 questions is 14 points. See Table 5.

Data Analysis

The data obtained was coded using the Comprehensive Meta-Analysis Version 3 software program. The program also was used to calculate the weighted mean and the weighted mean correlation (R) of each article and dissertation. Pearson's correlation coefficient (r) was used to analyze effect size.

Random-effect models were selected on the basis of the possible heterogeneity of the sample groups and methodological characteristics of the included studies. Funnel plots, Fail-Safe N tests, and the Begg and Mazumdar rank correlation test were used to determine publication bias (27).

RESULTS

Study Characteristics

Most of the studies included in this review were rated as high quality, and cross-sectional design was used in all studies. See Table 5 for a summary of the quality assessment of the included studies. See Table 3 and Table 4 for the details. All studies were executed in Turkey, were published between 2009 and 2018, and had a quantitative research design.

Six studies explored perceived mobbing levels (6-7,28-31), and three studies searched out the correlation between the mobbing and job satisfaction (2-3,7) of nurses.

Measurement Instruments for Mobbing

As the perceived mobbing levels were not compared with any variables when analyzed, studies prepared with the same scale were included in the research. The Leymann Inventory of Psychological Terror (LIPT) questionnaire was used in all studies to measure the perceived mobbing level. The LIPT is a scale that includes 45 intimidation behaviors. The frequency of mobbing was scored as 1 = daily, 2 = at least several times a week, 3 = several times a month, 4 = several times a year, and 5 = never. As the measured value approaches 1, the mobbing level increases. All five studies reported Cronbach's α reliabilities of > 0.95. For more information, please check Table 3.

Table 5. Summary of quality assessment								
	Akbaş (2009)	Alar Erkal (2012)	Aydın (2012)	Gül and Ağıröz (2011)	Kılıçaslan and Kaya (2017)	Kovar (2018)	Özdemir (2014)	Talas (2018)
Prospectives studies	0	0	0	0	0	0	0	0
Probably sampling	1	1	1	1	1	1	1	1
Appropriate sample size	1	0	1	0	0	0	0	0
Sample drawn from more than one site	1	1	0	0	0	1	0	1
Anonymity protected	1	1	1	1	1	1	1	1
Response rate >60%	1	1	1	1	0	1	1	0
Reliable measure of outcome(s)	1	1	1	1	0	1	1	1
Valid measure of outcome(s)	1	1	1	1	1	1	1	1
Valid measure of mobbing	1	1	1	1	1	1	1	1
*Mobbing internal consistency	2	2	2	2	2	2	2	2
Theoretical framework used	1	1	1	1	1	1	1	1
Correlation analysis for multiple effects	1	1	1	1	1	1	1	1
Management of outliers addressed	1	1	1	1	1	1	1	1
Total score	13	12	12	11	9	12	11	11
*Score 2 points								

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Model	Study name	Statistics for each study			Mean and 95% CI
		Mean	Lower limit	Upper limit	
	Alar Erkal 2012	1,460	1,403	1,517	
	Kovar 2018	1,690	1,632	1,748	
	Gul & Agiroz 2011	2,182	2,041	2,323	
	Kilicaslan & Kaya 2017	1,640	1,500	1,780	
	Ozdemir 2014	1,370	1,254	1,486	
	Talas 2016	2,860	2,795	2,925	
Random		1,867	1,352	2,382	

-4,00   -2,00   0,00   2,00   4,00
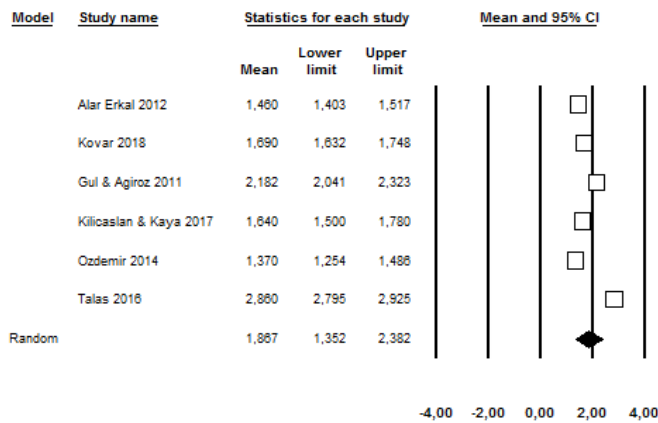
Figure 3. Forest graph results of general mobbing perception

Measurement Instruments for Mobbing and Job Satisfaction

Perceived mobbing levels was measured by the LIPT in two studies (2,7) and by the Mobbing Scale in one study (2). The Mobbing Scale was developed by Yıldırım and Yıldırım in 2008 (32). The scale consists of 33 items of six-point Likert types. A score of 0.00 is rated as never met, and 5.00 is rated as always encountered. If the score obtained from the scale is between 0.00 and 0.25, it can be said that the individual does not encounter mobbing behaviors. If it is 1 or more, the individual is seen as being exposed to deliberate mobbing behavior.

Job satisfaction levels were measured by the Minnesota Job Satisfaction Scale in two studies (3,7) and by the Job Satisfaction Scale in one study (2).

The Minnesota Job Satisfaction Scale was developed in 1967 by Weiss, et al (33). The scale consists of 20 questions of five-point Likert types. Scores from the scale vary between 20 and 100. On the five-point Likert-type scale, the scores were evaluated as 1 = never satisfied, 2 = not satisfied, 3 = undecided, 4 = satisfied, and 5 = very satisfied. When the total score approaches 100, it shows that job satisfaction has increased.

The Job Satisfaction Scale was developed in 1989 by Comer, Machleit, and Lagace (34). The scale consists of five-point Likert types. On the five-point Likert-type scale, the scores were evaluated as 5 = strongly agree, 4 = agree, 3 = undecided, 2 = disagree, and 1 = strongly disagree.

All studies reported Cronbach's α reliabilities of > 0.92 for mobbing, and of > 0.84 for job satisfaction. For more information, please check Table 4.

Meta-Analysis of the Perceived Mobbing Level

All studies in the meta-analysis examined the perceived mobbing level through the LIPT. The perceived mobbing level was high in some studies (35-38), medium in one (39), and low in some (18,40).

The meta-analysis showed that the perceived mobbing level was 1.867, which is high. Total population of the study was 1.452, and the 95% CI was 1.352–2.382. See Figure 3 for details.

The fail-safe number (FSN) value was 9068, which is higher than the recommended tolerance (5k + 10, k = 10). The funnel graph in Figure 5 is seen to have partial asymmetry due to a lack of studies. Although standard error values are good, there is partial symmetry. In this case, it can be said that there is partial publication bias. According to the results of the Begg and Mazumdar rank correlation test, which is another test of publication bias, there is no such bias (p = 0.12983).

Meta-Analysis of the Correlation Between Mobbing and Job Satisfaction

All studies in the meta-analysis examined the relationship between the overall perceived mobbing and job satisfaction. Some studies revealed that mobbing is related to job satisfaction (5-6,41-42), whereas other studies reported that mobbing and job satisfaction are not significantly correlated (22,43).

The results showed that mobbing and job satisfaction are significantly negatively correlated (r = -.510, p = .000). Total population of the study was 864, and the 95% CI was between -.558 and -.458. See Figure 4 for details.

The FSN value was 204, which is higher than the recommended tolerance. Therefore, the results were contemplated as potent. The funnel graph in Figure 6 is symmetrical, and there is concentration in the peak area of the graph. This is proof that there is no publication bias.

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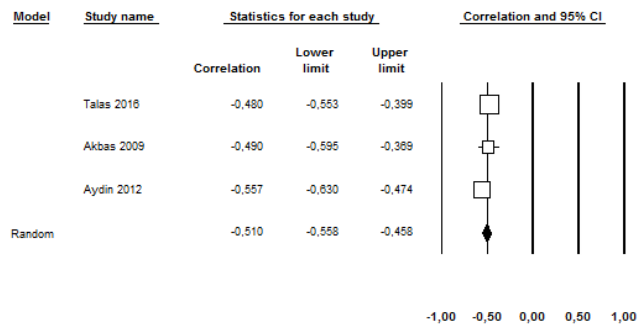
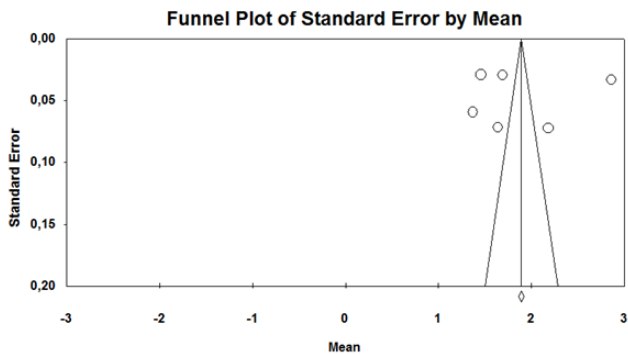Figure 4. Forest graph results of relationship between mobbing and job satisfaction

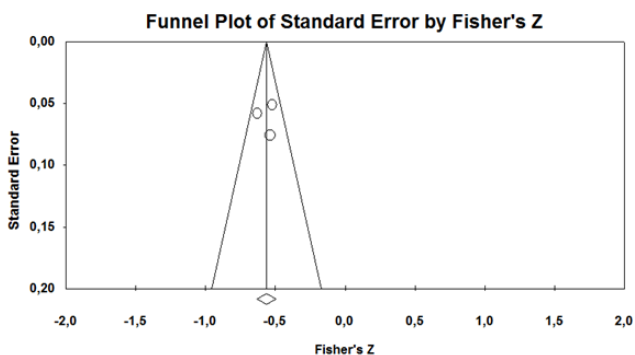Figure 5. Funnel plot publication bias test of general mobbing perception

Figure 6. Funnel plot publication bias test of relationship between mobbing and job satisfaction

DISCUSSION

When the literature is examined, there is a limited number of meta-analysis studies on mobbing. However, in the literature, no meta-analysis study on mobbing, mobbing dimensions, and job satisfaction of nurses has been found.

In this study, perceived mobbing levels, and the relationship between the job satisfaction and mobbing of nurses who work in Turkey, have been examined. Six studies have been added to the perceived mobbing level analysis of nurses, and the number of samples has reached 1,452. Four of them were prepared as master's theses and two of them were prepared as articles. Alar Erkal (28), Kovar (31), Kılıçaslan and Kaya (30), and Özdemir (6) found, in their studies with 309, 377, 117, and 160 nurses, respectively, that the perceived mobbing level of the nurses was between 1.00 and 1.99. This shows that nurses had experienced high levels of mobbing during the last year. In their studies, Gül and Ağıröz (29) with 103 nurses and Talas (7) with 386 nurses found the perceived mobbing level of nurses to be between 2.00 and 2.99. Although not as much as the other studies included in the analysis, the results of these studies also indicate that nurses are exposed to high levels of mobbing. As a result of the meta-analysis, the perceived mobbing level of nurses was calculated as 1.867 (p = 0.000). So, we can say that nurses encounter very high levels of mobbing in Turkey.

Topa and Moriano (44) measured the mobbing levels of 388 nurses with the Negative Behavior Scale prepared by Einarsen and Raknes in 1997. As a result of the study, the mobbing average of nurses was calculated as 1.51. According to the Negative Behavior Scale, this ratio shows that nurses are almost never exposed to mobbing, but it is reported that 75% of nurses have been exposed to mobbing behavior by their colleagues in the last 6 months. Aydın (3) measured the mobbing levels of nurses with the Mobbing Scale developed by Yıldırım and Yıldırım in 2008 on 301 nurses working in a university hospital in Istanbul. As a result of the study, the average mobbing level of the nurses was calculated as 0.947. According the scale used, if this value is less than 1, it shows that nurses are not deliberately exposed to mobbing. According to the study by Aydın (3), nurses are exposed to mobbing behaviors to a serious extent, if not intentionally.

Qunie (45) aimed to measure mobbing levels by using the Hospital Anxiety and Depression Scale prepared by Zigmond and Snaith in 1983 on 1,100 health care workers (396 nurses) in the UK. It was shown that 44% of the

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nurses were exposed to mobbing behaviors, and nurses were exposed to more mobbing behaviors than other health care workers (mobbing average of nurses = 2.2, mobbing average of other health care workers = 1.5).

Yıldırım and Yıldırım (46) observed that 86.5% of nurses were exposed to mobbing behaviors, and Yıldırım (47) observed that 21% of nurses had been exposed to mobbing behaviors in the last year. Pınar, et al (48) calculated the mobbing exposure of health care workers as 15% in their study on 12,944 health care workers (4,343 nurses). As a result of their meta-analysis, Dalvand et al (49) found that the mobbing rate of 5,639 nurses in Iran was 28%.

In their studies, Talas (7) with 386 nurses, Akbaş (2) with 177 nurses, Aydın (3) with 301 nurses, Goris et al (50) with 446 nurses, Aiken et al (51) with 84 nurses, Özdemir (6) with 160 nurses, Gökdemir (5) with 277 nurses, and Quine (45) with 1,100 health workers (396 nurses) found a negative correlation between job satisfaction and mobbing. So, there is an inverse relationship between mobbing and job satisfaction. As one increases, the other decreases. No scale limitation was applied when examining the relationship between mobbing and job satisfaction. Three studies were added to this analysis, and the number of samples reached 864. As a result of the analysis, the correlation value of the relationship between mobbing and job satisfaction was calculated as -.510 (p = .000). As mobbing levels of nurses in Turkey increase, job satisfaction levels decrease.

In the literature, the perceived mobbing levels that nurses are exposed to varies. In line with the studies included in the meta-analysis research, it was determined that nurses are exposed to high levels of mobbing in Turkey. A negative relationship was observed in all studies in the field of job satisfaction and mobbing. In this study, this relationship was found to be negative, in parallel with the other results.

CONCLUSION

The perceived mobbing level, according to the meta-analysis, were found to show that nurses are exposed to a high degree of mobbing behavior in Turkey. The relationship between mobbing and job satisfaction showed a negative and moderate correlation. In other words, as the mobbing level increases, the job satisfaction level decreases.

Since individuals spend about one-third of their lives working in the workplace, satisfaction from work will increase the quality of the individual in his or her working life and therefore the level of satisfaction he or she will feel from his or her social life. The negative consequences of the negative relationship between mobbing and job satisfaction affect not only the individual's social life but also many variables such as the success, performance, and profit ratio of the organization. For this reason, managers are expected to take care to keep the job satisfaction levels of their employees high. It is necessary to identify the employees who have problems by the managers, to guide them and create a fair and friendly working environment.

Limitations
This study has several limitations. Nurses who are only working in Turkey were included in this study. Studies published in Turkish and English were used.

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