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Gold D, Bowden R, Sixbey J, Riggs R, Katon WJ, Ashley R, et al. Chronic fatigue. A prospective clinical and virologic study. JAMA 1990;264:48-53.

Özcan S, Bozhüyük A. Sağlığın geliştirilmesi ve aile hekimlerinin rolü. Turkish Journal of Family Medicine &Primary Care 2013 Sep;7(3):46-51.DOI:10.5455/tjfmpc.42859

Glauser TA. Integrating clinical trial data into clinical practice. Neurology 2002;58(12 Suppl 7):6-12.

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Books published in a foreign language
Curren W. Youth and health. In: Neinstein LS, editor. Adolescent Health Care a Practical Guide. 4th ed. Philedelphia:Lippincoatt Williams&Wilkins; 2002. p.1417-31.

Books in Turkish:
Akturan U, E□en A. Fenomenoloji. Şahinoğlu AH, Türker B, Akturan U, editörler. Nitel Araştırma Yöntemleri. 1. Baskı. Ankara: Seçkin Yayıncılık; 2008. p.83-98.

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Helmann GC. Cultural aspect of stress and suffering. In: Culture, Health and Illness. 5th ed. Florida: CRC Press Taylor &Francis Group; 2007. p.288-99.

Translated books:
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3.Publications in conference proceedings
Kurdak H. Bedenimiz, neredeyiz, neler yapabiliriz? Mungan NÖ, editör. Kadında periyodik sağlık muayeneleri. I. Kadın Hekimlik ve Kadın Sağlığı Sempozyumu Kitabı; 10 Mayıs 2013; Adana, Türkiye. Adana: Ergin Yayınevi; 2013. p. 52-5.

4.Dissertations
Yılmaz EE. Adana il merkezindeki lise öğrencilerinin beslenme ve fiziksel aktivite alışkanlıklarının değerlendirilmesi. Uzmanlık tezi. Çukurova Üniversitesi Tıp Fakültesi, Aile Hekimliği Anabilim Dalı, 2013.

Yazarlara Bilgi

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Etik konular: Etik kurul onayı gereken yazılar gönderilirken ilgili onay belgesi de elektronik olarak gönderilmelidir. İnsanlarda veya hayvanlarda gerçekleştirilen araştırmalarda ulusal ve uluslar arası etik kılavuzlara uyum ve ilgili etik kurullardan izin esastır. Makalelerin etik kurallara uygunluğu yazarların sorumluluğundadır.

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Olgu sunumlarında hastanın kimliğinin ortaya çıkmasına bakılmaksızın hastalardan veya gereği durumunda yasal temsilcisinden "Bilgilendirilmiş gönüllü olur" (informed consent) belgesi alınmalı ve makalenin olgu sunumu başlığı altında yazılı olarak ifade edilmelidir. Hastadan veya yasal temsilcisinden alınan "**Bilgilendirilmiş gönüllü olur**" belgesi dergiye yollanmalıdır.

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Bir yazı şu bölümlerden oluşmalıdır:

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   Gold D, Bowden R, Sixbey J, Riggs R, Katon WJ, Ashley R, et al. Chronic fatigue. A prospective clinical and virologic study. JAMA 1990;264:48-53.

   Özcan S, Bozhüyük A. Sağlığın geliştirilmesi ve aile hekimlerinin rolü. Turkish Journal of Family Medicine &Primary Care 2013 Sep;7(3):46-51. doi:10.5455/tjfmpc.42859

   Glauser TA. Integrating clinical trial data into clinical practice. Neurology 2002;58(12 Suppl 7):6-12.

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   Akturan U, E□en A. Fenomenoloji. Şahinoğlu AH, Türker B, Akturan U, editörler. Nitel Araştırma Yöntemleri. 1. Baskı. Ankara: Seçkin Yayıncılık; 2008. p.83-98.

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   Helmann GC. Cultural aspect of stress and suffering. In: Culture, Health and Illness. 5th ed. Florida: CRC Press Taylor &Francis Group; 2007. p.288-99.

   Çeviri kitap:

   Carr RJ. İdrar inkontinansı. Kut A, Eminsoy MG, çev.editörleri. Current Aile Hekimliği Tanı ve Tedavi. 3. baskı. Ankara: Güneş Tıp Kitabevleri; 2014.p.461-71.

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Original Research

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An Assessment on Health And COVID-19 Indicators of OECD Countries
OECD Ülkelerinin Sağlık ve COVID-19 Göstergelerine Yönelik Bir Değerlendirme

Mustafa FİLİZ. [1]

Abstract
Objective: The aim of this study is to reveal the cluster distribution and success ranking of OECD countries in the impact of health indicators on COVID-19 indicators.
Material-Method: The universe of the research is 38 OECD countries, and the sample consists of 30 countries that have access to the variables used. Data were obtained from the official websites of OECD and World Bank. In the study, five variables that are considered to represent a country's health indicators and four variables related to COVID-19 were used. Cluster analysis and TOPSIS method were used in the analysis of the data.
Results: It has been seen that the most successful cluster in terms of COVID-19 indicators is the cluster in which Australia and New Zealand are located. In terms of COVID-19 indicators, the most unsuccessful cluster was Israel and the Czech Republic. According to the TOPSIS analysis findings, it was determined that the most successful country in the average of health and COVID-19 indicators was Italy and the most unsuccessful country was Spain.
Conclusion: As a result, when countries are clustered according to COVID-19 indicators and healthindicators, it has been seen that countries with strong health supply power do not mean that the COVID-19 indicators will be good. On theother hand, it does not mean that COVID-19 indicators will be bad in countries with low health supply power.

Keywords: Primary Care, Health Indicators, TOPSIS, Clustering, COVID-19**.**

Özet
Amaç: Bu çalışmada amaç, sağlık göstergelerinin, COVID-19 göstergelerine etkisinde OECD ülkelerinin kümele dağılımının ve başarı sıralamasının ortaya konmasıdır.
Materyal-Metot: Araştırmanın evreni 38 adet OECD ülkesi olup, örneklemi ise kullanılan değişkenlereyönelik erişim sağlanan 30 adet ülke oluşturmaktadır. Veriler OECD ve Dünya Bankasının resmi sitelerinden elde edilmiştir. Çalışmada birülkenin sağlık göstergelerini temsil ettiği kabul edilen beş adet değişken ve COVID-19 ile ilgili olarak dört adet değişken kullanılmıştır.Verilerin analizinde kümeleme analizi ve TOPSIS yöntemi kullanılmıştır.
Bulgular: Covid-19 göstergeleri açısından en başarılı kümeninAvusturalya ve Yeni Zelanda'nın bulunduğu küme olduğu görülmüştür. Covid-19 göstergeleri açısından en başarısız kümenin ise İsrail veÇek Cumhuriyeti'nin bulunduğu küme olmuştur. Ülkelerin kümelenmesinde Covid-19 ölümleri ve Covid-19 vaka sayılarının etkili olduğugörülmüştür. TOPSIS analizi bulgularına göre sağlık ve Covid-19 göstergeleri ortalamasında en başarılı ülkenim İtalya olduğu ve enbaşarısız ülkenin ise İspanya olduğu saptanmıştır.
Sonuç: Sonuç olarak Covid-19 göstergeleri ve sağlık göstergelerine göre ülkeler kümelendiğinde sağlık arz gücü güçlü ülkelerin Covid-19 göstergelerinin de iyi olacağı anlamı taşımadığı görülmüştür. Diğer yandan sağlık arz gücü düşük ülkelerinde Covid-19 göstergelerinin de kötü olacağı anlamına gelmemektedir.

Anahtar Kelimeler: Birinci Basamak, Sağlık Göstergeleri, TOPSIS, Kümeleme, COVID-19.

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Introduction

The COVID-19 epidemic, which first emerged towards the end of 2019 and spread all over the world, is expressed as one of the global challenges. COVID-19, which emerged in Wuhan, China, has been defined as a global epidemic by the World Health Organization. This virus causing the epidemic is a newly discovered disease type and its etiology is not clearly known.[1]

For the first time in the history of humanity, such a wide scale of measures have been taken on a global scale, and more than half of the world's population has experienced a lockdown process with strong containment measures.[2] The sectors that continue their activities are limited to the production, transportation and sale of food products, provided that they comply with certain hygiene, and social distance conditions. On the other hand, basic services such as electricity, natural gas, and water continued. The workload of some sectors has increased significantly. Health services are at the forefront of these sectors.

Due to the unique characteristics of health services, health systems are significantly affected by technological, environmental, political, and economic factors.[3] Many factors such as the technological infrastructure, environmental elements, political structures, approaches to events and historical development of the countries of the world differ from each other. According to the use of these factors, the development, and performance perceptions of health services also differ.[4]

The way and the results of the fight against the epidemic during the COVID-19 process also differ according to the countries.[5] The difference in the health system causes significant difficulties in determining which country is more successful since the health success indicators of the countries change and the way of combating the epidemic changes from country to country.[6] In the literature, it is accepted that factors such as isolation of the basic priorities, active use of diagnosis and follow-up systems, gaining experience in early diagnosis, effective treatment and good care conditions, and maintaining effective surveillance are the prerequisites for a successful struggle.[7]

Important factors like social distance and the extent to which countries have implemented quarantines affect how the epidemic affects different countries in different ways. The majority of the actions attempted to combat the outbreak focused on ways to lessen the sickness. However, this circumstance has negative consequences on the sectors and indirectly has an impact on the economy, output, etc. Situations like declining incomes for the populace, rising unemployment, poverty, and inequality contributed to further deepening. Particularly in the areas of transportation, production, and service provision, it has been observed.[8]

All countries reacted differently to the epidemic, and efforts were made to end the epidemic with minimum damage by taking measures at the national and international level. Not only health institutions, but also local governments have been involved in this process by contributing in different ways.[9] Because effective coordination mechanisms among the state levels against the epidemic are important and strong coordination between all actors responsible for the response at central and regional levels is seen as the basis of an effective response.[10]

Epidemic countries economic, social, health, etc. caused changes in many areas. This study, it is focused on the classification and ranking of the effect of the epidemic on health indicators according to the country's health indicators and COVID-19 indicators. The study, first of all, it is aimed to classify some indicators that determine the potential of countries to provide health services and similar countries in COVID-19 indicators by cluster analysis and to rank the countries by TOPSIS method. It is thought that in the fight against COVID-19, which has recently been spoken about the output of the study rather than the process, providing scientific evidence and categorizing countries by using different analysis techniques, both by classification and ranking, is important in terms of giving a different perspective to the literature and providing new information.

Literature Review

In this section, the findings of the literature review for academic research conducted with the two analysis methods used in the study will be included. In the first part, the studies on clustering analysis, and in the second part, the analyzes using the TOPSIS method are included.

Literature Review for Cluster Analysis

The main purpose of cluster analysis is to classify and give meaning to a set of data whose place is unknown. Therefore, cluster analysis is used to classify units or objects according to their basic properties.[11] In other words, it can be said that clustering analysis is done to distinguish similarities from differences.[12]

In the literature, there are studies on the classification of countries according to various sectors or institutions providing the same services in various sectors by cluster analysis. In this section, articles that evaluate cluster analysis and COVID-19 indicators in the literature will be included.

Khafaie and Rahim performed a cluster analysis based on the cases of death and recovery rates of countries due to COVID-19 in their study. As a result, Italy is the country with the highest case fatality rate, followed by Spain and France, respectively.[13]

Additionally, Cordes and Castro conducted a cluster study on the distribution of risk burden and resource allocation for COVID-19 and health power in the USA. Analysis variables were test rates and positive rates. It has been discovered that the USA has a lot of inequities as a result. High-income, higher education, and white populations were found in the cluster with fewer tests and fewer positive cases, while it was discovered that the black population and uninsured people were more prevalent in the cluster with more tests and more positive cases. In other words, blacks, the poor, and individuals with low education in the USA have suffered more from COVID-19 and received less health care than other groups.[14]

Verelst et al., carried out a cluster analysis for European countries using COVID-19 deaths, number of cases, hospital beds, health workers and health expenditure rates. As a result, it has been seen that the countries with the most strained health system capacity are Italy, Spain, Netherlands and France, respectively. In the process, it was stated that the Netherlands and France experienced more pressure than Italy.[15]

Demircioğlu and Eşiyok evaluated the number of cases, the number of recoveries, and the ratio of the number of tests to the population of the country as a COVID-19 output in their study. As health indicators, the number of doctors, the number of elderly population, the number of beds, the number of intensive care beds, the health expenditure ratio, and the number of nurses were evaluated as inputs. The K-means method was used and the values were analyzed through the WEKA program. Turkey; It has been discovered that the cluster—which includes nations like Germany, Japan, and Denmark is more effective at battling the pandemic than nations like the United States, Germany, Italy, and France.[16]

Kartal et al., in their cluster analysis on COVID-19 indicators (the number of cases, the number of deaths), determined that the countries closest to the cluster centers were Spain, Ukraine and Mongolia, respectively. Although the number of cases and deaths is high in Spain, Italy, France, Germany, and China, the rate of increase has been found to approach zero.[17]

Abdullah et al., in their studies, the risk levels of the provinces in Indonesia to the COVID-19 indicators were tried to be revealed by cluster analysis. The variables were death, number of cases and number of recoveries. As a result, it was seen that three clusters emerged in Indonesia according to the risk group.[18]

Literature Review for TOPSIS Analysis

The logic of the TOPSIS method is to reveal the positive ideal solution and the negative ideal solution, and to rank the alternatives on the basis of relative closeness to the ideal solution. A positive ideal solution is one that maximizes the benefit criterion and minimizes the cost criterion. The negative ideal solution is a solution that minimizes the benefit criterion and maximizes the cost criterion. The most suitable option is the alternative closest to the ideal solution and the farthest from the negative ideal solution.[19]

According to Zeleny, decision-making is expressed as a function to manage, resolve or resolve exchange disputes.[20] Since the basis of decision-making is based on the selection of the alternative with the highest degree of preference, the decision-making process in problems involving a single criterion is highly intuitive. However, when alternatives with more than one criterion are evaluated in decision-making, advanced methods should be applied to overcome some situations (weights of criteria, priority status and disagreement between criteria).[21]

In the literature, there are studies on the success ranking of institutions that provide the same services in various sectors, according to the health indicators of the countries, using the TOPSIS method. In this study, researches using TOPSIS in the health literature related to COVID-19 will be included.

Mohammed et al., determined the criteria for 10 COVID-19 and compared 12 different methods to reveal the diagnosis of COVID-19 with the Entropy and TOPSIS method. As a result, it is foreseen that the ordering of the methods can be performed with TOPSIS and decisions can be made accordingly.[22]

Majumder et al., tried to determine the most risky factors between COVID-19 indicators and death by using the TOPSIS method in their study.[23]

Hezer et al., using data published by Deep Knowledge Group, ranked the security levels of 100 regions in the world in terms of COVID-19 by TOPSIS, COPRAS and VIKOR methods.[24]

Alkan and Kahraman in their study, analyzed ENTROPY and TOPSIS methods in order to rank success among different strategies followed by different countries in the struggle against COVID-19. As a result, it was determined that the best strategy is mandatory quarantine and strict isolation.[25]

In their study, Hezam et al. used the AHP and TOPSIS approach to analyze data in order to identify the risk groups for whom the COVID-19 vaccination should be administered first. The elderly, people with high-risk diseases, healthcare personnel, workers in basic occupations, and pregnant and lactating women were shown to be the riskiest categories as a result.[26]

Material and Method

The Population and Sample of the Research: OECD countries constitute the population of the research. These countries are Germany, USA, Australia, United Kingdom, Denmark, France, Ireland, Israel, Switzerland, Italy, Iceland, Japan, Canada, Costa Rica, Colombia, Korea, Latvia, Lithuania, Luxembourg, Hungary, Mexico, Norway, Sweden, Poland, Spain, Portugal, Netherlands, Slovakia, Finland, Slovenia, Estonia, Chile, Czech Republic, Turkey, Belgium, New Zealand, Austria and Greece.

The sample of the study is Germany, USA, Australia, United Kingdom, Denmark, France, Ireland, Israel, Switzerland, Italy, Canada, Latvia, Lithuania, Luxembourg, Hungary, Mexico, Norway, Sweden, Poland, Spain, Portugal, Netherlands, Finland, Estonia, Chile, Czech Republic, Belgium, New Zealand, Austria and Greece. Iceland, Japan, Costa Rica, Colombia, Korea, Slovakia, Slovenia and Turkey, which are among the OECD countries, were excluded from the study due to missing data on the variables used in the study.

Variables Used in the Research: In determining the variables to be used in the research, previously published reports in the field and academic publications that are partially similar were taken into account. Basic inputs of health services; human resources, capital, technology, raw materials, tools and equipment, and outputs; prolongation of life, survival, treatment of diseases and developments in this regard.[27]

The input or independent variables that best represent a country's health indicators and the best output or dependent variables that show the success in the fight against COVID-19 were tried to be determined. The World Health Organization states that the risk assessment of COVID-19 should be made according to criteria such as the incidence of the disease, the number of deaths, the rate of hospitalization and intensive care unit admission, health care capacity, public health capacity, and accessibility to effective drug therapy.[28]

Within the scope of the literature, it was decided to use a total of 9 variables in the analyzes. Detailed information about the variables used is given below.

Health Indicators (Inputs)

a.Elderly Population: Share of 65+ Population in Total Population in a Country (%).

b.Health Expenditure: Percentage of GDP allocated to health in a country.

c.Number of Beds: Number of total hospital beds per 1,000 people remaining, excluding beds reserved for long-term care, in a given period in a country.

d.Number of Physicians: Number of physicians per 1,000 people in a certain period in the country.

e.Number of intensive care beds: Number of beds reserved for intensive care per 100,000 people in a country.

COVID-19 Indicators (Outputs)

a.COVID-19 deaths: Number of deaths from COVID-19 per 1 million from December 2019 to the end of June 2021.

b.Increase in deaths: Percent increase in average deaths in a country during the COVID-19 period (December 2019-June 2021) over the average death rate in 2015-2019.

c.Number of cases: Per hundred thousand people in a country diagnosed with COVID-19 between December 2019 and June 2021.

d.Vaccination: Proportion of individuals vaccinated against COVID-19 per 100 people in a country's population between December 2019 and June 2021.

Data Collection and Analysis:

Data from 30 countries were used in the study. The data on the elderly population, health expenditure, number of beds, and intensive care beds of the countries in 2019 can be found on the website where the reports published by the OECD are shared, and the data on the number of physicians can be found on the World Bank website. It was obtained from the website.[29,30] Data such as the number of deaths from COVID-19, the percentage increase in total deaths, the number of COVID-19 cases, and the vaccination rate were obtained from the Health at a Glance 2021 report published by the OECD.[31] The variables used in the study and the data of the countries are shared in Table 1.

Table 1.*Countries and Data Constituting the Sample of the Study*

	Input					Output			
Countries	Elderly Population	Health Expenditure	Number of Beds	Number of Physicians	Number of intensive care beds	COVID-19 deaths	Increase in deaths	Number of cases	Vaccination
	-	+	+	+	+	-	-	-	+
Australia	15,8	9,418	3,8	3,76	8,1	36	2,58	437	45,6
Austria	18,9	10,434	7,2	5,21	21,8	1180	9,07	8368	60,1
Germany	21,4	11,697	7,9	4,30	28,2	1095	5,37	5117	64,2
USA	16	16,767	2,8	2,60	21,6	1824	19,85	13197	55,2
Belgium	18,7	10,659	5,6	5,96	17,3	2186	9,39	10867	72,6
United Kingdom	18,3	10,154	2,5	5,82	7,3	2232	11,67	11608	66,0
Czech Republic	19,8	7,835	6,6	4,12	43,3	2838	27,76	15842	55,7
Denmark	19,7	9,956	2,6	4,22	18,5	436	1,38	6190	75,3
Estonia	19,9	6,730	4,5	3,46	38,1	956	7,83	11956	53,5
Finland	22,1	9,159	3,4	4,64	5,4	176	2,31	2572	63,4
France	20,3	11,112	5,8	6,53	16,4	1652	10,01	10438	66,1
Holland	18,9	10,165	3,1	3,70	7,0	1020	10,43	11535	67,6
Ireland	14,2	6,679	2,9	3,35	5,2	1007	9,64	7929	74,2
Spain	19,1	9,132	3,0	4,03	10,4	1710	13,49	10490	78,6
Israel	11,9	7,461	3,0	5,47	12,1	743	9,64	14925	64,4
Sweden	19,9	10,291	2,1	4,33	5,1	1420	4,12	11177	64,2
Switzerland	18,6	11,291	4,6	4,33	9,9	1197	8,98	9810	58,4
Italy	22,8	8,669	3,2	8,01	8,7	2140	12,92	7850	68,3
Canada	17,2	10,844	2,5	2,44	12,1	699	10,57	4347	71,2
Latvia	20,4	6,578	5,4	3,30	11,1	1325	5,27	8473	46,4
Lithuania	19,8	7,006	6,4	5,04	20,4	1573	8,69	12171	60,3
Luxembourg	14,4	5,371	4,3	3,01	21,3	1307	8,64	12510	62,9
Hungary	19,3	6,350	6,9	3,41	11,3	3070	11,83	8443	58,7
Mexican	7,4	5,433	1,0	4,85	3,5	1813	54,79	2857	35,4
Norway	17,4	10,521	3,5	4,89	5,4	148	-2,39	3550	67,0
Poland	17,5	6,462	6,2	2,38	10,1	1978	22,57	7670	51,7
Portugal	21,8	9,531	3,5	2,37	8,9	1663	12,16	10405	85,2
Chile	11,8	9,333	2,0	5,18	7,6	1739	25,70	8669	73,7
New Zeland	15,3	9,069	2,5	3,42	3,4	5	0,83	91	41,5
Greece	21,8	7,838	4,2	6,23	17,5	1188	8,02	6170	59,4

Cluster analysis method and TOPSIS method were used to analyze the data. Cluster analysis was used to classify the countries according to the variables used, and the TOPSIS method was used to rank the countries in order of success. Microsoft Excel and SPSS 25 package programs were used for cluster analysis. Microsoft Excel program was used for TOPSIS method calculations.

Ethical Method and Limitations of the Study

The data used in the research were obtained from the official websites of the OECD and the World Bank. Therefore, there is no need for any ethical committee decision.

The findings and results obtained in the study are valid for the 30 countries that make up the sample, and the research inputs are limited to 2019 and the COVID-19 data to June 2021, after the first outbreak of the pandemic. On the other hand, the variables used in the research were carried out with the assumption that the country's health indicators and COVID-19 represent success. Finally, the classification of countries according to study variables and their success ranking are limited to cluster analysis and TOPSIS method. It is foreseen that it will be useful to approach the findings and results of the study by considering the limitations in question.

Results

The findings obtained in this section are given in two parts as the findings for the cluster analysis and the findings for the TOPSIS analysis.

Findings on Cluster Analysis

The tree graph obtained by the Ward method is shown in Figure 1 below. Accordingly, the resulting shape was evaluated and it was decided that the most appropriate number of clusters was 5.

The five clustering results determined using the Ward method are given below.

1.Cluster: France, USA, Portugal, Belgium, Spain, United Kingdom, Switzerland, Estonia, Lithuania, Holland, Luxembourg and Sweden.

2.Cluster: Czech Republic, Israel

3.Cluster: Australia, New Zeland, Finland, Norway and Mexican.

4.Cluster: Denmark, Greece and Germany. Canada

5.Cluster: Austria, Latvia, Shiite, Ireland, Italy and Poland.

It was decided to divide the OECD countries into five clusters according to the determined health and COVID-19 indicators. Accordingly, it was seen that there were 12 countries in the 1st cluster, 2 in the 2nd cluster, 5 in the 3rd cluster, 4 in the 4th cluster and 7 in the 5th cluster. After the cluster numbers were determined, the k-means clustering analysis technique, which is one of the non-hierarchical clustering analysis methods, was used. Analysis results are shared in Table 2.

Table 2. *Cluster Memberships and Distances by K-means Cluster Analysis*

Countries	Cluster	Distance	Countries	Cluster	Distance
Australia	1	173,725	Sweden	5	355,892
Austria	2	525,716	Switzerland	2	1497,153
Germany	3	777,587	Italy	2	702,782
USA	5	1725,650	Canada	3	109,033
Belgium	5	856,507	Latvia	2	386,565
United Kingdom	5	648,681	Lithuania	5	384,678
Czech Republic	4	1143,609	Luxembourg	5	1063,021
Denmark	3	1825,028	Hungary	2	1366,138
Estonia	5	793,090	Mexican	3	1850,469
Finland	3	1929,949	Norway	3	1067,831
France	5	1050,291	Poland	2	781,080
Holland	5	576,911	Portugal	5	1084,063
Ireland	2	842,609	Chile	2	270,387
Spain	5	1003,452	New Zeland	1	173,725
Israel	4	1143,609	Greece	3	1813,013

In Table 2, the cluster memberships and distances resulting from the K-means cluster analysis are given. Accordingly, the countries included in the analysis were found to be the least distance to Australia (173,725) and New Zealand (173,725) and the maximum to Finland (1929,949). The clusters formed by the countries as a result of the clustering obtained by the K-mean clustering analysis method are given in Table 3.

Table 3. *Clustering Results by K-means Cluster Analysis*

1. Cluster (2)	2. Cluster (8)	3. Cluster (7)	4. Cluster (2)	5. Cluster (11)	
Australia	Austria	Germany	Czech Republic	USA	Spain
New Zeland	Ireland	Denmark	Israel	Belgium	Sweden
	Switzerland	Finland		United Kingdom	Lithuania
	Italy	Canada		Estonia	Luxembourg
	Latvia	Mexican		France	Portugal
	Hungary	Norway		Holland	
	Poland	Greece			
	Chile				

Cluster classification resulting from K-means cluster analysis is given in Table 3. Accordingly, while the 5th cluster is the cluster with the highest number of countries with 11 countries, the 1st cluster and the 4th cluster are the clusters with the least number of countries with 2 countries each. The averages of the health and COVID-19 indicators used in the clustering by clusters are given in Table 4.

Table 4. *Final Cluster Centers*

Variables	1.Cluster	2.Cluster	3.Cluster	4.Cluster	5.Cluster
Elderly Population	15,550	17,938	18,143	15,850	18,827
Health Expenditure	9,244	8,225	9,350	7,648	9,720
Number of Beds	3,150	4,800	3,586	4,800	3,964
Number of Physicians	3,590	4,396	4,510	4,795	4,260
Number of intensive care beds	5,750	10,712	12,943	27,700	15,800
COVID-19 deaths	21	1705	794	1791	1595
Increase in deaths	1,705	13,247	11,436	18,700	10,571
Number of cases	264	8402	4400	15,384	11,487
Vaccination	43,550	61,438	62,271	60,500	66,564
: Best indicator		: Lowest indicator			

In Table 4, it is seen that the cluster with the best ratio in terms of the share of individuals over the age of 65 in the population is the 1st cluster and the cluster with the lowest data is the 5th cluster. From a general point of view, although the 1st cluster was the lowest in 3 indicators (number of beds, number of physicians, number of intensive care beds) in terms of health indicators, it was seen that it was the best cluster in 3 indicators (COVID-19 deaths, increase in deaths, number of cases) in terms of COVID-19 indicators. On the other hand, while the 4th cluster was the best cluster in 3 indicators (number of beds, number of physicians, number of intensive care beds) regarding health indicators, it was seen that it was the cluster with the lowest values in 3 indicators (COVID-19 deaths, increase in deaths, number of cases) in COVID-19 indicators.
In Table 5, the findings of the distances between the last cluster centers are shared.

Table 5. *Distances Between Final Cluster Centers*

Clusters	1	2	3	4	5
1	*	*	*	*	*
2	8039,949	*	*	*	*
3	4208,109	4103,459	*	*	*
4	15222,787	6982,553	11028,237	*	*
5	11332,643	3087,187	7131,455	3901,71	*
:Nearest Clusters			:Farthest Clusters		

According to Table 5, regarding the distance values between the last cluster centers, it is seen that the 2nd and 5th clusters are the closest clusters (3087,187) to each other, while the 1st and 4th clusters are the most distant clusters (15222,787) from each other. In the cluster analysis, ANOVA test was applied to find out the difference between the health and COVID-19 indicator values in terms of clusters.
The results of the ANOVA test for the clusters formed as a result of the K-mean cluster analysis are given in Table 6.

Table 6. *K-mean Cluster Analysis ANOVA Results*

Variables	Mean Squares	df	Error Mean Squares	df	F	p
Elderly Population	7,237	4	12,689	25	0,570	0,687
Health Expenditure	3,754	4	5,740	25	0,654	0,630
Number of Beds	2,190	4	3,319	25	0,660	0,626
Number of Physicians	0,459	4	2,011	25	0,228	0,920
Number of intensive care beds	160,282	4	83,214	25	1,926	0,137
COVID-19 deaths	1938619,112	4	375625,294	25	5,161	**0,004**
Increase in deaths	82,350	4	119,317	25	0,690	0,606
Number of cases	111565699,3	4	1013041,696	25	110,129	**0,000**
Vaccination	229,753	4	105,658	25	2,174	0,101

When the ANOVA results in Table 6 are examined, it is seen that the variables for COVID-19 deaths (p:0,004<0,05) and COVID-19 case rate (p:0,000<0,05), which are among the selected variables, play an important role in the classification of OECD countries under five clusters.
Again, according to Table 6, variables such as the rate of the elderly population, health expenditure, number of patient beds, number of physicians, number of intensive care beds, increase in deaths and COVID-19 vaccine rate does not play a role in the classification of OECD countries under five clusters (p>0,05).

TOPSIS Method

Finally, the TOPSIS method was used to rank the countries according to their health indicators and COVID-19 indicators. TOPSIS method, developed by Chen and Hwang with reference to Hwang and Yoon is a multi-criteria decision-making technique that can be applied on quantitative data.
In this study, seven steps were followed in the use of the TOPSIS method and the success ranking of the countries was made.[32,33] Calculations were made using Excel.
1-Determining the decision matrix: The total effect of the 9 criteria used in the study was equally weighted as 1 and the weight coefficients were determined.
2-Normalization of the decision matrix: The normalized decision matrix is determined by reducing each value in the columns to a single denominator by dividing the sum of the squares of the values in the relevant column by the square root.
3- Weighting of the Normalized Decision Matrix: The standard matrix criteria are multiplied by the weight coefficients and a weighted decision matrix is created.
4- Determination of positive and negative ideal solutions: In the weighted decision matrix, ideal values for the ideal solution and negative ideal values for the negative ideal solution are selected from each column. Accordingly, 5 criteria were determined as positive ideal criteria, health expenditure, number of patient beds, number of physicians, number of intensive care beds and COVID-19 vaccine rate. Negative ideal criteria, on the other hand, were determined as 4 criteria: elderly population, COVID-19 deaths, increase in deaths and number of COVID-19 cases.
5-Calculation of Distance Values (SI+/SI-): The distance values from the positive ideal and negative ideal solution were calculated by subtracting the positive ideal and negative ideal values from the values in the column of each factor.
6-Calculation of Relative Closeness to the Ideal Solution: The average distances of each country from the positive and negative ideal solutions were calculated by taking the square root of the sum of the squares of the distance values of each country. The final convergence (Cj) ratios were found by dividing the negative mean distance of the relevant country by the sum of the positive and negative mean distances. High affinity was considered a priority in the ranking.
7- Ranking of Proximity Values: The ranking of success of 30 countries according to 9 variables using the TOPSIS method is given in Table 7.

Table 7. *Rankings of Countries by TOPSIS Method*

Countries	Sİ+	Sİ-	Cİ	RANKİNG
Italy	0,064584	0,06518	109,3796	1
Holland	0,064192	0,066447	29,46908	2
Ireland	0,064887	0,068638	18,29593	3
Sweden	0,06631	0,071616	13,49712	4
Israel	0,06143	0,069995	8,172245	5
Switzerland	0,057449	0,06974	5,673838	6
Luxembourg	0,057324	0,070421	5,377021	7
Latvia	0,059545	0,073159	5,37377	8
Canada	0,057548	0,072203	4,92683	9
Belgium	0,054839	0,070125	4,587415	10
Lithuania	0,053736	0,072134	3,920758	11
France	0,052128	0,071382	3,707346	12
New Zeland	0,061899	0,087618	3,406721	13
Finland	0,057678	0,084238	3,17162	14
Greece	0,050385	0,074182	3,117286	15
Australia	0,054693	0,086373	2,726401	16
Norway	0,055031	0,089532	2,595075	17
Denmark	0,048442	0,083708	2,373578	19
Estonia	0,048469	0,080792	2,499547	18
Austria	0,044362	0,077046	2,357288	20
Germany	0,037195	0,0861	1,760547	21
Mexican	0,101445	0,037382	-0,58352	22
Chile	0,071485	0,04982	-2,29961	23
Poland	0,069836	0,0539	-3,38238	24
United Kingdom	0,06813	0,061747	-9,67362	25
USA	0,063706	0,059542	-14,2987	26
Hungary	0,069144	0,064972	-15,5726	27
Czech Republic	0,069713	0,065548	-15,739	28
Portugal	0,066688	0,063118	-17,6788	29
Spain	0,064378	0,061197	-19,2413	30

In Table 7, it was seen that Italy was the most successful country in reflecting health variables to COVID-19 indicators according to TOPSIS analysis, followed by the Netherlands and Ireland. It is seen that the most unsuccessful country is Spain, followed by Portugal and the Czech Republic.

Discussion and Conclusion

Important data were obtained in this study, in which OECD countries were classified and ranked according to health and COVID-19 indicators.

According to the results of the cluster analysis, the countries are divided into five clusters in the tree graph made with the Ward method of OECD countries. As a result of the K-mean clustering analysis, the countries with the least distance were Australia and New Zealand, and Finland the most. In other words, while the countries closest to the desired ideal solution are Australia and New Zealand, Finland is the farthest country.

The COVID-19 indicators, which are the COVID-19 deaths, the increase in the deaths, and the COVID-19 cases, have been the best cluster in indicators like the number of, even though the cluster that includes Australia and New Zealand is the lowest cluster in terms of the number of patient beds, the number of physicians, and the number of intensive care beds expressing the health indicators. On the other hand, the cluster that consists of the Czech Republic and Israel is the best cluster in terms of health-related metrics, including the quantity of doctors, the quantity of beds, and the quantity of intensive care beds.. In other words, factors such as the number of physicians, beds and intensive care beds representing the health supply did not have an effect on COVID-19 deaths, the increase in deaths and the number of cases. It has been observed that the opposite is the case. While this situation evaluates the COVID-19 indicators, not only health indicators, but also social, economy, education, etc. It can be said that this may be due to the fact that factors also play an active role.

In the study, regarding the distance values between the last cluster centers, the 2nd cluster (Austria, Ireland, Switzerland, Italy, Latvia, Hungary, Poland and Chile) and the 5th cluster (USA, Belgium, United Kingdom, Estonia, France, Netherlands, Spain), Sweden, Lithuania, Luxembourg and Portugal) are close to each other, while cluster 1 (Australia and New Zealand) and cluster 4 (Czech Republic and Israel) are the most distant clusters from each other. In other words, according to the 9 variables used in the study, the countries in the 2nd cluster and the countries in the 5th cluster are more similar to each other than the other clusters. On the other hand, according to 9 variables, the 1st and 4th clusters showed more differences between them compared to the other clusters.

It has been determined that the variables used in the cluster analysis play an important role in the division of countries into 5 clusters, with the number of COVID-19 deaths and COVID-19 cases. It has been determined that the variables for the elderly population, health expenditure, number of beds, number of physicians, number of intensive care beds, percentage increase in total deaths and COVID-19 vaccine do not play any role in the clustering of countries.

According to the TOPSIS analysis, it has been determined that Italy is the most successful country in terms of health indicators and COVID-19 indicators, followed by the Netherlands and Ireland, and the most unsuccessful country is Spain, followed by Portugal and the Czech Republic.

When evaluated in general, it is obvious that the effect of health supply power variables on Covid-19 indicators is also the effect of public health indicators. The fact that the countries' Covid-19 data do not show parallelism, especially according to the health supply power, is proof of this. Therefore, it is of great importance to consider public health indicators when evaluating Covid-19 data. As a matter of fact, Zhu et al, the best intervention to reduce the contagiousness of the Covid-19 epidemic is to maintain social distance, follow hygiene rules and pay attention to wearing masks.[34] In this respect, when evaluating the Covid-19 indicators, countries The level of compliance with public health rules also needs to be taken into account. This situation can be considered as a limitation of the study. Because the analyzes and variables used in the study should be kept within a certain limit.

The results obtained in the study were examined with the effect of health supply power on Covid-19 indicators and the ranking and clustering of countries were made accordingly. According to Spellbring, an individual's health-related attitudes and behaviors affect himself individually, his family and society in general.[35] This interaction was seen more clearly during the pandemic period. Different studies and analyzes are needed to reveal the effects of these attitudes and behaviors.

It is thought that personal care skills, which are considered as public health indicators, and the confidence given by this, also have an effect on the Covid-19 data. Indeed, Stark et al. they can make their personal lives healthier with the confidence and power of gaining personal care skills.[36] This is thought to have a reducing effect on Covid-19 deaths. Therefore, while evaluating the findings, the behavior of the citizens of the country should be carefully examined.

As a result, when countries are clustered according to COVID-19 indicators and health indicators, it has been seen that countries with strong health supply power do not mean that the COVID-19 indicators will be good. On the other hand, it does not mean that COVID-19 indicators will be bad in countries with low health supply power. As a matter of fact, the findings obtained in the study are in this direction. Because the criteria used in clustering and TOPSIS analyzes are not evaluated individually, they are included in the analysis collectively, they provide values for the average result. In other words, a country whose health supply power is not good can be in good clusters due to its good COVID-19 indicators and its success ranking is also good. On the other hand, developed countries are in a good position in clustering and ranking due to the good health supply power even if the COVID-19 indicators are bad. Therefore, it is predicted that it would be beneficial to consider this situation while conducting the analysis.

It is predicted that it would be beneficial to carry out comprehensive studies by including the countries whose data on the variables used in the study were not obtained. In addition, it is predicted that it will be beneficial to use clustering and different numerical decision-making methods by increasing the number of variables used.

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Conflicts of Interest

The authors declare that they have no competing interests.

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The Effect of Particulate Air Pollution on Infant Mortality in the Short Term: The Case of Ankara Province in 2018-2020

Partiküler Hava Kirliliğinin Bebek Ölümlerine Kısa Dönemdeki Etkisi: 2018-2020 Yılları Ankara İli Örneği

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Abstract

Background: Today, nine out of 10 people on a global scale live in an air pollution environment above the limit values determined. It is predicted that particulate air pollution is a risk factor for 5.3% of deaths under the age of one in Türkiye. In order to examine the causes of infant deaths and take necessary precautions, it is important to investigate air pollution and the possibilities of infant death due to.

Aims: This study was carried out to examine the relationship between Particulate Matter (PM) 2.5 and (PM)10 levels observed in Ankara between the years 2018-2020 and infant deaths that occurred at that time.

Methods: To examine the relationship poisson regression model, in which the terms formed by the flexible cubic spline function, were mainly used. The effect of each 10 µg/m3 increase in PM2.5 and PM10 on infant mortality, taking into account lags of up to seven days by adjusting for seasonal trends and air temperature effects, was determined by relative risk (RR) and 95% confidence intervals (CI) analyzed by calculation.

Results: In the evaluated period, 1295 infant deaths occurred in 754 of 1096 days. The three-year average of the daily average PM2.5 and PM10 levels detected in Ankara is above the limit values.

Conclusion: The effect of particulate air pollution on infant mortality in the first week was not detected, this relationship may become detectable when different variables such as possible effect modifiers are included in the models applied. The subject should also be examined under such different conditions.

Keywords: Environmental epidemiology, Time series, Air pollution, Infant mortality

Özet

Genel bilgiler: Günümüzde küresel ölçekte her 10 kişiden dokuzu hava kirliliği sınır değerlerin üstünde olan yerlerde yaşamaktadır. Türkiye'de bir yaş altı ölümlerin %5,3'ünün risk faktörünün partiküler hava kirliliği olduğu öngörülmektedir. Bebek ölümlerinin nedenlerinin incelenerek gerekli önlemlerin alınabilmesi açısından hava kirliliği ve kirliliğe bağlı erken ölüm olasılıklarının araştırılması önemlidir.

Amaç : Bu çalışma, Ankara'da 2018-2020 yılları arasında gözlenen Partikül Madde (PM) 2.5 ve (PM)10 düzeyleri ile o dönemde meydana gelen bebek ölümleri arasındaki ilişkiyi incelemek amacıyla yapılmıştır.

Yöntem: Partiküler hava kirliliğinin bebek ölümleriyle olan ilişkisinin irdelenmesinde temel olarak esnek kübik spline fonksiyonuyla oluşturulan Poisson regresyon modeli kullanılmıştır. Mevsimsel trendler ve hava sıcaklığı etkisi arındırılarak yedi güne kadar olan etki gecikmeleri (lag) göz önüne alınıp her 10 µg/m3'lük PM2.5 ve PM10 artışının bebek ölümleri üzerine olan etkisi rölatif risk (RR) ve %95 güven aralıkları (GA) hesaplanarak incelenmiştir.

Sonuçlar: Ankara'da saptanan günlük ortalama PM2.5 ve PM10 düzeyinin üç yıllık ortalaması limit değerlerin üzerindedir ve değerlendirilen zaman diliminde, 1096 günün 754'ünde 1295 bebek ölümü gerçekleşmiştir.

Yapılan hesaplamalarda hem PM2.5 hem de PM10'un yüksek değerlerine maruziyet günü ve sonraki ilk üç günde ölüm riskinde değişiklik yokken sonraki günlerde ölüm riskinin anlamlı olarak düştüğü ve yedinci günde bu farkın ortadan kalktığı gözlemlenmiştir. Sonuçta PM2.5 ve PM10 ile yapılan hesaplamalar, partiküler hava kirliliğinin ilk haftada bebek ölümleri üzerine etkisi gösterilememiştir.

Tartışma: Partiküler hava kirliliğinin ilk haftada bebek ölümleri üzerine etkisi saptanmamasına rağmen uygulanan modellere olası etki düzenleyiciler gibi farklı değişkenler dahil edildiğinde bu ilişki saptanır hale gelebilir. Konunun bu gibi farklı koşullarla da incelenmesi gerekmektedir.

Anahtar kelimeler: Çevre epidemiyolojisi, Zaman serisi, Hava kirliliği, Bebek ölümü

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Background

Air pollution is the pollution of the indoor or outdoor environment by any chemical, physical or biological agent that changes the natural properties of the atmosphere.[1] While the main cause of air pollution is fossil fuels, the main air pollutants are particulate matter (PM_{10}, $PM_{2.5}$), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and carbon monoxide (CO).[2]

While particulate matter, which is one of the air pollutants, was declared carcinogenic by the World Health Organization (WHO) in 2013, the maximum annual limit values were determined as 15 μg/m3 for PM_{10} and 5 μg/m3 for $PM_{2.5}$.[2] Worldwide, nine out of 10 people live above the limit values determined by WHO, in other words, they breathe polluted air.[1]

The air pollution parameters of only two provinces (Bitlis and Hakkari) in Türkiye in 2020 were below the guide values recommended by WHO. Again in 2020, Turkey was the 46th most dirty aired country in the world and the 9th country in Europe. Based on the Sites Station in Ankara, it has been shown that air pollution problems are over 220 days of the year's guide values, and sometimes the pollution has reached dimensions that can seriously affect health by increasing the guide values up to four times.[3,4]

It is well documented that in cases such as inversion events where air pollution is very intense, it can cause major public health problems in a very short time, also less intense air pollution threatens public health.[5] Outdoor and indoor air pollution plays an important role as a source of morbidity and mortality, especially by causing respiratory diseases. According to WHO data, a total of seven million people die every year in the world due to diseases caused by air pollution.[1]

Air pollution is recognized as the biggest environmental health threat. In the ranking of causes of death in the world, outdoor air pollution ranks sixth, and indoor air pollution ranks eighth.[6] Biological mechanisms such as increasing the release of cytokines by particulate matter, activation of the coagulation cascade, decreasing plaque stability, and causing cardiac autonomic dysfunction have been demonstrated in the association of air pollution with deaths.[7,8] The elderly, infants, and people with chronic diseases are most affected by the death and serious morbidity effects resulting from short-term acute high exposures.[7]

Air pollution is a serious risk factor for mortality and disease burden not only for adults but also for infants. In general, air pollution can cause health problems such as respiratory system diseases such as asthma, chronic obstructive pulmonary disease (COPD), bronchitis, pneumonia,[9] Type 1 diabetes,[10] autism,[11] mental retardation[12] in infants, while short-term exposure to pollution can also cause low birth weight and its effect on sudden infant death syndrome[13] have been demonstrated.

In Figure 1, infant deaths (under the age of one) and the burden of disease are shown in Türkiye and in the world, where outdoor particulate air pollution is a risk factor over the years.[14]

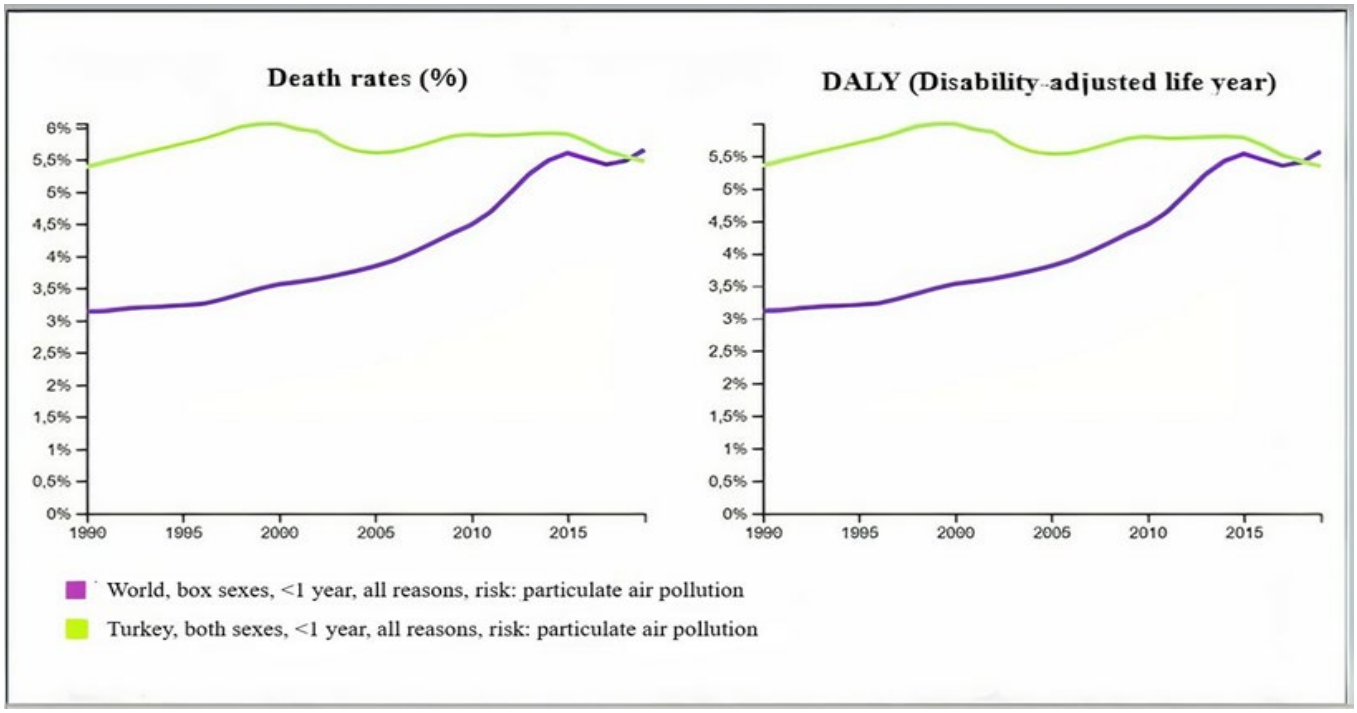

Figure 1. *The Share of Particular Air Pollution as a Risk Factor in Infant Deaths and Disease Burden in Turkey and in the World (Reference, Global Health Data Exchange. GBD Results Tool | GHDx [Internet]. [cited 2021 Nov 5]. Available from: http://ghdx.healthdata.org/gbd-results-tool).*

In studies of the relationship between particulate air pollution and infant mortality, there are studies reflecting that the risk of death increases in the first days after exposure to pollution, and there are studies in the literature that do not demonstrate such a relationship. In some cases, the risk of death rising in the early days after exposure to pollutants at high doses may bring a decrease in death frequencies in the following days. This is called "Harvesting". The possible explanation for this effect is that the deaths that may occur after a certain period occurs in patients who are critical due to exposure.[15]

Material-Method

In the context of health protection in Türkiye, the causes of infant deaths should be examined and necessary measures should be taken. Considering the air pollution in Ankara province and the possibility of infant deaths due to pollution, it is important to investigate this relationship. The relationship between air pollution data and deaths pollution was made at the city scale, similar to the studies using the APHEA protocol (Agency for Public Health Education Accreditation), but the acceptable proportion of lost data per station, which was 25% in the protocol, increased to 33%[16] and stations with complete data for two-thirds of the entire study time were included in the study. From the eight stations operating in Ankara since 2018, the PM_{10} data of seven of them meeting these criteria and the $PM_{2.5}$ of four of them were used. Also based on the literature, the average measurements of the stations were calculated and the pollution data of the relevant day had been obtained. [17–19] There is no loss in PM_{10} data calculated by averaging, while there is a 0.9% loss in $PM_{2.5}$. Missing data were completed by averaging the two measurement days closest to the missing day. With the use of the numbers and percentages of infant mortality data, basic characteristics of infants who died were defined, infant mortality was considered the dependent variable and midday air temperature was considered confounding, and the relationship between particulate air pollution values and infant mortality was investigated. RStudio (RStudio Team (2021). RStudio: Integrated Development for R. RStudio, PBC, Boston, MA URL http://www.rstudio.com) was used in the calculations.

In the relationship of particulate air pollution with infant mortality, the Poisson regression model was used, in which the terms formed by the flexible cubic spline function were included. For this purpose, firstly, a spline curve using a total of 20 nodes was created. In the established Poisson regression model, the relationship between particulate air pollution and infant mortality was calculated using this curve, removing the effects of seasonal trends and then air temperature, and taking into account lags of up to seven days. The effect of each 10 μg/m3 increase in $PM_{2.5}$ and PM_{10} on infant mortality was investigated by calculating the relative risk (RR) and 95% confidence intervals (CI).

Results

Between 2018 and 2020, 1295 infant deaths occurred in Ankara. Descriptive data on infant deaths are presented in Table 1. The data contains some missings. Since the main purpose of the study was to examine the relation between the number of infant deaths per day and particulate air pollution, existing missing data such as gender and birth weight were not taken into account in the regression analysis. Among the causes of infant deaths, prematurity is the first in rank and constitutes more than half of all deaths. Heart diseases are in second place, followed by metabolic and syndromic diseases (Table 2).

Table 1. *General characteristics of infant death cases in Ankara Province in 2018-2020.*

	n	%
Gender (n=1292)		
Male	710	55
Female	582	45
Birth weight (gram) (n=1290)		
>2500	354	27.4
≤2500	936	72.6
Pregnancy Week (n=1292)		
≥37	361	27.9
<37	931	72.1
Mother's Age (years) (n=1285)		
<35	1115	86.8
≥35	170	13.2
Infant's Age (months) (n=1292)		
1-2	965	74.7
3-12	327	25.3

Table 2. *Causes of Infant Mortality Ankara Province in 2018-2020.*

Cause of mortality	**Number**	**%**
Prematurity	759	58.6
Heart diseases (Congestive heart failure, Pulmonary Hypertension, etc.)	201	15.5
Metabolic and syndromic diseases	137	10.6
Respiratory diseases (Respiratory Distress Syndrome, Pneumonia, etc.)	69	5.3
Sudden Infant Death Syndrome	46	3.6
Asphyxia and deaths due to aspiration	37	2.9
Infectious diseases (sepsis etc.)	27	2.1
Other diseases	19	1.4
Total	**1295**	**100**

In the evaluated period, 1295 infant deaths occurred in 754 of 1096 days, while the highest number of infant deaths in one day was seven. The mean daily $PM_{2.5}$ levels detected in Ankara are between 2.95-110.68 µg/m3 and the three-year average is 18.15±11.60 µg/m3. PM_{10} levels are between 12.77-314.76 µg/m3, with a three-year average of 53.73±32.88 µg/m3. As expected, peaks in particle levels were observed in autumn and winter (Figure 2,3).

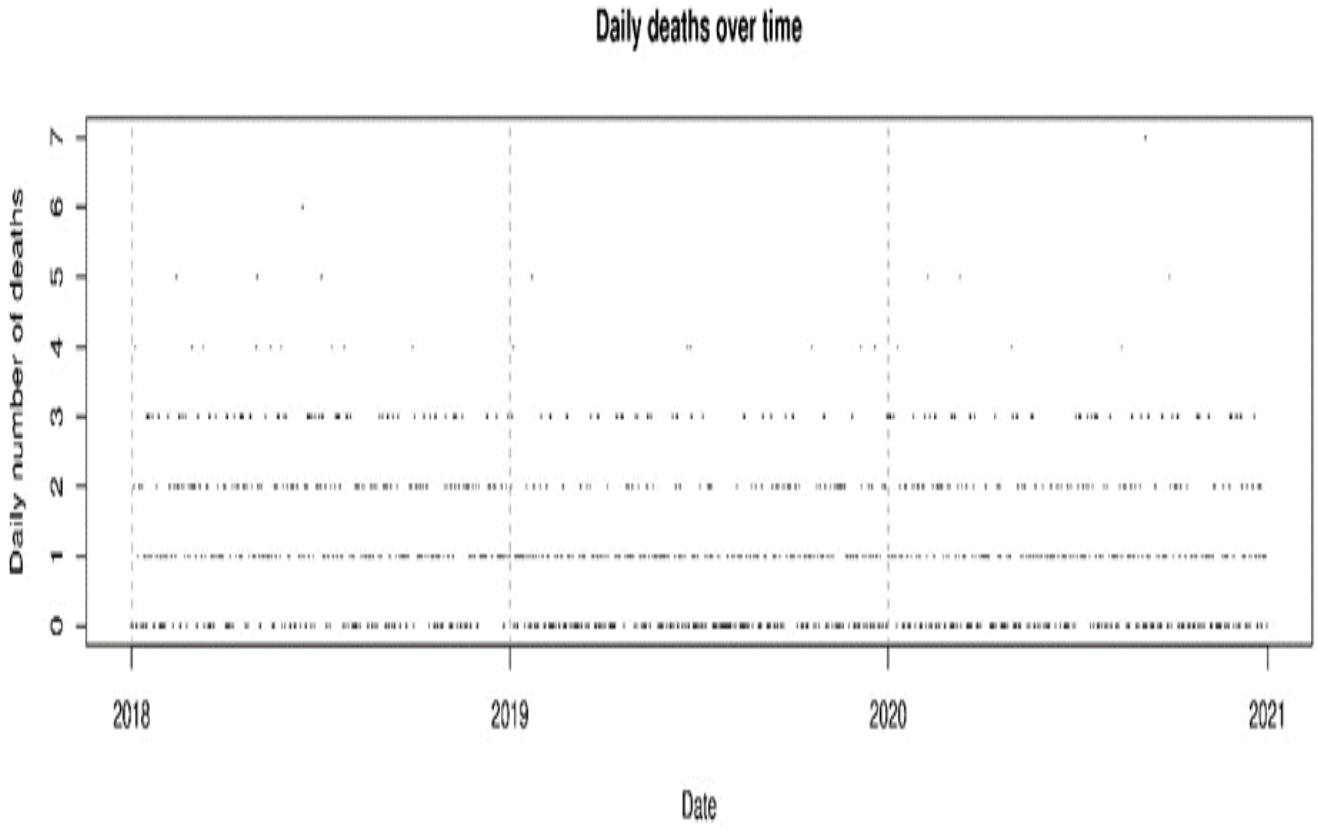

Figure 2. *Number of deaths and the distribution of PM_{10} ve $PM_{2.5}$ levels by the years, Ankara Province in 2018 2020.*

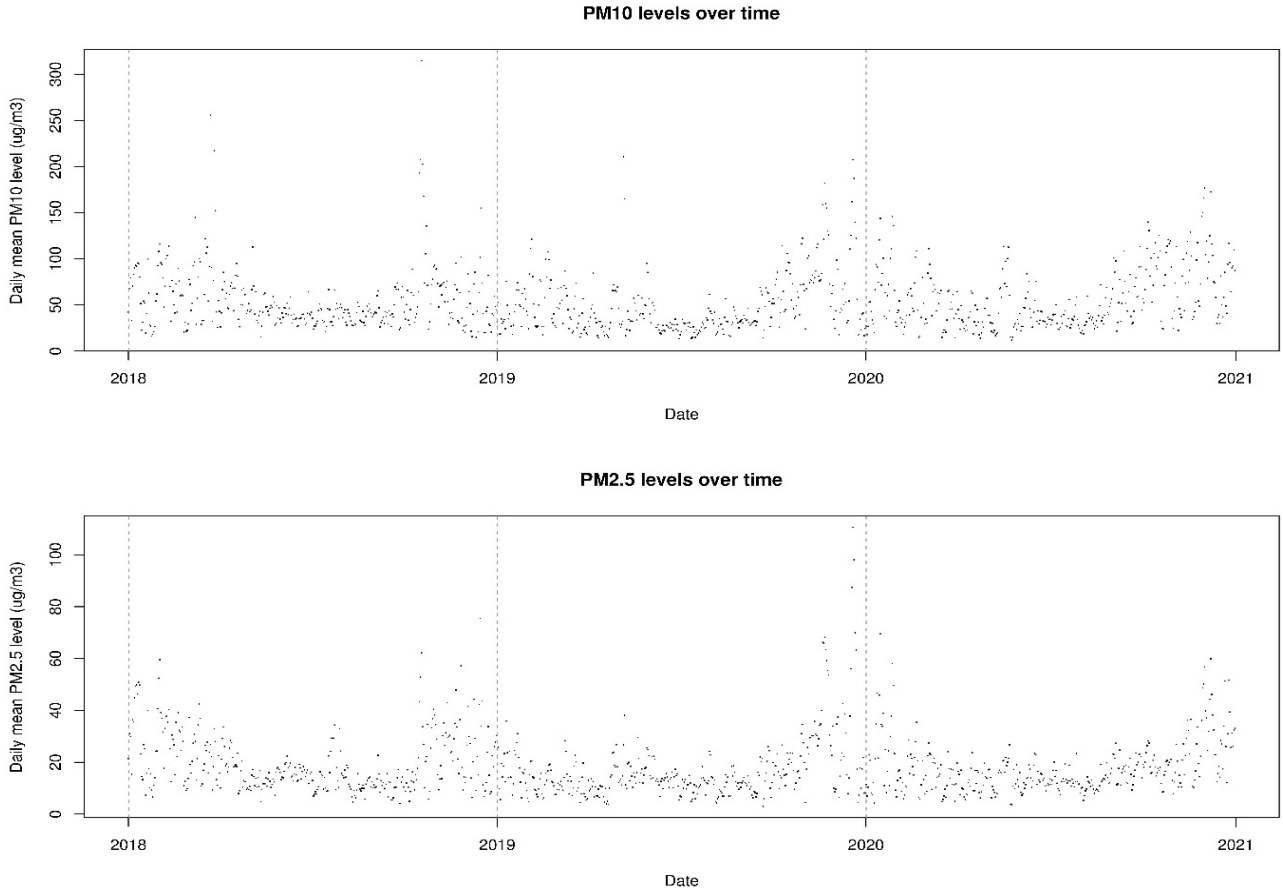

Figure 3. *Change of PM_{10} and $PM_{2.5}$ level over time.*

In order to examine the relationship between particulate air pollution and infant mortality, the Poisson regression model, in which the terms formed by the flexible cubic spline function were included, was used (Figure 4).

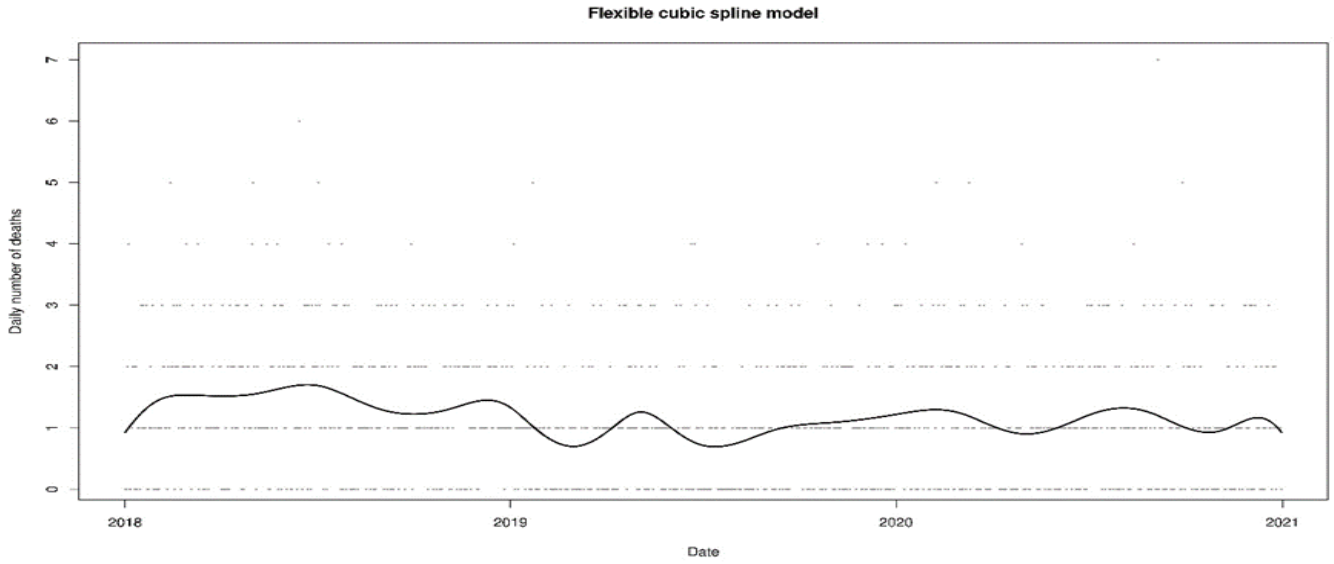

Figure 4. *Representation of the relationship between infant deaths and particulate air pollution with a flexible cubic spline model, Ankara Province in 2018-2020.*

Calculations reflected that there was no change in the risk of death on the day of exposure to high values of both $PM_{2.5}$ and PM_{10} and in the first three days after, for $PM_{2.5}$ on days four, five and six reflecting a significantly lower risk of death. This difference also disappeared on the last day (Day 7^{th}) examined (Table 3) (Figure 5).

Table 3. *Generalize Linear Model, about the effect of PM_{10} and $PM_{2.5}$ on infant death. (per 10 µg/m3 particulate pollutants increase).*

	lag	RR (95% Cl)
PM_{10} (µg/m^3)	0	0.991 (0.970-1.012)
	1	0.993 (0.972-1.014)
	2	0.994 (0.973-1.015)
	3	0.997 (0.976-1.018)
	4	0.970 (0.948-0.992)
	5	0.968 (0.947-0.990)
	6	0.974 (0.953-0.996)
	7	1.000 (0.979-1.020)
$PM_{2.5}$ (µg/m^3)	0	0.962 (0.906-1.021)
	1	1.006 (0.949-1.067)
	2	0.993 (0.936-1.052)
	3	0.961 (0.905-1.021)
	4	0.945 (0.889-1.004)
	5	0.916 (0.861-0.975)
	6	0.935 (0.879-0.994)
	7	1.010 (0.953-1.070)

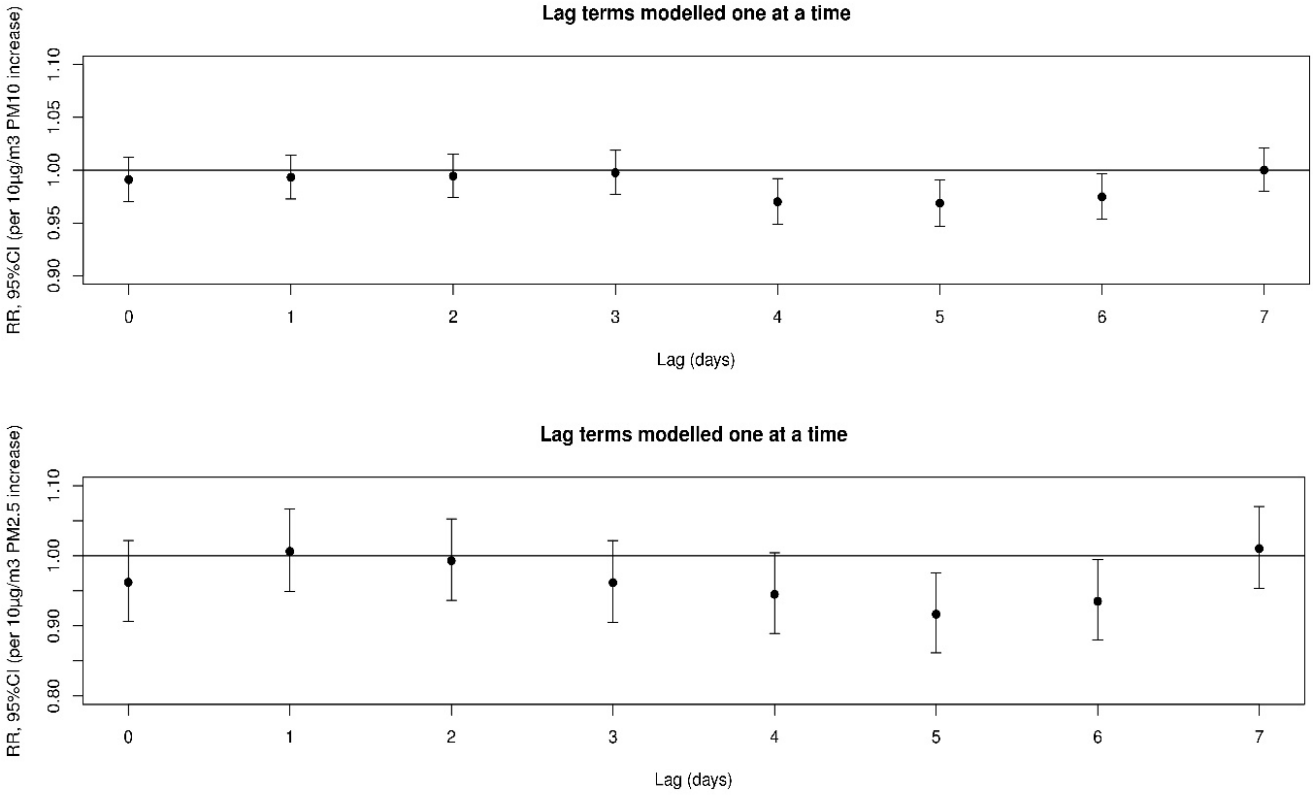

Figure 5. *Lag terms modeled one at a time for PM_{10} and $PM_{2.5}$*

Discussion

Considering the possibility that air pollution-related infant deaths will develop a few days later rather than the day when the pollution is intense, delays of up to one week are taken into account, and neither PM_{10} nor $PM_{2.5}$ levels are risk factors for infant mortality in the results, in which long-term trends and air temperature are excluded not shown. These findings may be related to the fact that PM measurements do not represent actual exposure or that errors due to measurements and calculations are insufficient to show the existing relationship. In addition, considering that 94.7% of these deaths occur in hospitals, the short-term effect of outdoor air pollution may have decreased in the hospital environment where the last days of life are spent.

Harvesting is a phenomenon that mentions the decline in infant deaths in 4-6. days, after the rise in the first days of air pollution. Accordingly, deaths that are expected to occur after a certain period of exposure to the health risk may shift to the early stages (first days) of exposure, so days when the risk of death is relatively reduced after a certain period of exposure can be seen. However, in our study, no increase in deaths was observed in the first days of exposure to high-dose particulate pollution, in this case, it is also not correct to attribute the decrease in 4-6 days to the "harvesting" effect. There is no biological mechanism to explain the fact that death risk is not seen in the first days but in 4-6 days and this change is in the form of a decrease. As a result, neither $PM_{2.5}$ nor PM_{10} calculations showed the effect of particulate air pollution on infant mortality in the first week.

When very high levels of pollution were observed in London in the 1950s, sharp increases in infant mortality occurred.[20] Similar to this one, in a study examining 2798 infant deaths between 1993-95 in Mexico City, which is using time series, it was observed that infant deaths were strongly related to the mean $PM_{2.5}$ concentration, especially during the 3-5 days before death.[20] Again, in a different study in Mexico City (including 1997-2005) and in a study that included 22288 infant deaths between 1990 and 2000 in 10 big cities in England, no significant relationship was observed between infant mortality and PM_{10} and $PM_{2.5}$.[17,19] In a study conducted in Seoul in 1995 and 1999 using Poisson regression, PM_{10} was found to be a risk factor for postneonatal deaths.[21]

In the literature, the relationship between air pollution and infant mortality has also been examined in case-crossover studies, apart from time series. While studies conducted in Taipei, Kaohsiung, Mexico city, and Seoul did not find a relationship between air pollution and infant deaths,[17,18,22,23] studies conducted in Flanders, Tokyo, Belgium, are cross-case control studies which found a relationship between particulate air pollution and infant deaths.[24,25] Differently, in a cohort study conducted in the USA, no relationship was found between particulate air pollution and infant mortality due to all causes.[26]

Some of the studies that found a relationship between infant mortality and air pollution were carried out over a longer period than this study, and some focused on infant deaths mainly. It can be thought that the relationship explored in studies conducted in the past, where the unmet health needs were higher, and studies with longer duration and in which more deaths were included in the analysis, would be more easily demonstrated.[27] The inclusion of more stations in the study, as in the study carried out in Seoul, may have provided a more accurate measurement of exposure to air pollution, thereby demonstrating the effect more clearly.[21]

This study, which investigated the relationship between infant deaths and particulate air pollution, has limitations. The first of these may be the inability of air pollution measurements to represent exposure to particulate air pollution, which is considered a risk factor. There may be errors related to measurement and data, or missing data may have led to the failure to detect a possible relationship. Although it is based on the measurements of seven stations, the acceptable proportion of lost data per station from 25% in the APHEA protocol has been increased to 33% to keep the number of stations included high. Thus, the number of stations that can be included has been increased from 2 to 7, despite an additional 8% loss in lost data. Instead of associating the station measurements with the deaths in the surrounding geography, in this study, it is assumed that air pollution changes in the geography that includes the whole of Ankara Province. Apart from these, open-air particulate air pollution may not cause deaths with a short-term effect. In parallel with the decrease in unmet health needs over the years, babies with impaired general health can be hospitalized more frequently nowadays,[28] thus these babies may be exposed to outdoor air pollution less in today's conditions.

Although some studies are showing the relationship between air pollution and death due to certain causes, in this study, the relationship of particulate air pollution with all-cause infant deaths was investigated, regardless of the diseases reported as the last cause of death. The lack of a relationship in this study is not intended to investigate the role of air pollution in infant deaths due to different reasons, and it is not possible to make inferences on this issue.

Limitations of the study

The limitations of this study which investigates the relationship between infant mortality and particulate air pollution can be summarized as follows. The first of these may be the inability of air pollution measurements to represent exposure to particulate air pollution, which is considered a risk factor. There may be errors in the measurements and data, as well as missing data that may have caused to be unable to detect a possible relationship. Although it is based on the measurements of 7 stations, the acceptable lost data rate per station from 25% in the APHEA protocol has been increased to 33% to keep the number of stations included high. So, the number of stations that can be included has been increased from 2 to 7, despite an additional 8% loss in data. Instead of associating the station measurements with the deaths in the surrounding areas of the stations, in this study, it is assumed that air pollution changes in the whole of Ankara.

Apart from these, open-air particulate air pollution may not cause deaths with a short-term effect today. In parallel with the decrease in unmet health needs over the years, infants with impaired general health may be hospitalized more frequently nowadays, therefore they may be less exposed to outdoor air pollution in today's conditions. Although some studies are showing the relationship between air pollution and deaths due to certain causes, in this study, the relationship of particulate air pollution with all-cause infant mortality was investigated, regardless of the diseases reported as the last cause of death. This study is not intended to investigate the role of air pollution in infant deaths due to different reasons, and it is not possible to make inferences on this issue. Further research is needed that covers longer time spans.

Conclusion

No significant relationship was found between particulate air pollution and infant deaths. The reason why no statistically significant results were obtained from the calculations made in the investigation of the considered relationship may be due to many different reasons such as study design, data completeness and accuracy, data processing preferences, and analysis selection. Although it is more difficult to detect compared to previous studies, the lack of significant results in this study does not mean that the relationship does not exist. Research on the effect of particulate air pollution on infant deaths in the short term needs to be repeated in different designs, in different models that include different variables such as possible effect modifiers, and in different geographies. Studies in this direction can provide guiding results in terms of infant health on a national scale.

Added value of this study

There are many valuable studies carried out nationwide related to air pollution issues.[4] But to our knowledge, with this study we present data for the first time for trends of infant mortality and particulate air pollution in our Country. Though as we mentioned above the study has limitations (data is limited for the Capital City Ankara and limited for the years 2018-2020) the study perspective may shed light on different studies.

Funding

No specific funding for received for this study.

Conflicts of Interest

The authors declare that they have no competing interests.

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The association between medication adherence and quality of life in patients with diabetes at primary healthcare centers: A cross-sectional study

Birinci Basamakta Tip 2 Diyabet Hastalarının İlaç Uyumu ve Yaşam Kalitesi İlişkisi: Kesitsel Bir Çalışma

Ramazan ALÇINAR[1], Mustafa Kürşat ŞAHİN[1]

Abstract

Aim: This study aimed to evaluate the association between medication adherence and quality of life in patients with diabetes receiving primary healthcare centers.

Method: Patients with type 2 diabetes, aged 18-65 between July and October 2022, were included in this cross-sectional study. A questionnaire including sociodemographic characteristics, the Diabetes Quality of Life (DQOL) scale, and the Modified Morisky Scale (MMS) were used.

Results: Two hundred nine patients with type 2 diabetes participated in this study. The mean age of the participants was 53.5±9.2 years, and 51.7% were women. The mean DQOL score of the participants was 3.8±0.7. Quality of life was higher among married participants and those with medium-high income, diagnosed with diabetes <5 years previously, without diabetes complications, using only oral antidiabetic drugs for the treatment of diabetes, who regularly used diabetes medications, who dieted and exercised for diabetes, and who regularly attended diabetes follow-up ($p<0.05$). Quality of life was also higher in those with better MMS showing a better medication adherence motivation and knowledge levels ($p<0.01$).

Conclusions: Participants' medication adherence motivation and knowledge levels were associated with an increased quality of life. Admission to primary healthcare centers for diabetes follow-up was also associated with a higher quality of life.

Keywords: diabetes mellitus, quality of life, medication adherence, primary care

Özet

Amaç: Bu çalışmada, birinci basamakta tip 2 diyabet hastalarının ilaç uyumu ve yaşam kalitesi ilişkisinin değerlendirilmesi amaçlandı.

Yöntem: Bu kesitsel tipte çalışmaya Temmuz-Ekim 2022 tarihleri arasında 18-65 yaş arası tip 2 diyabet hastaları dahil edildi. Katılımcılara bir anket uygulandı. Ankette sosyodemografik özellikler, Diyabet Yaşam Kalitesi Ölçeği (DYKÖ) ve Modifiye Morisky Ölçeği (MMÖ) yer aldı.

Bulgular: Çalışmaya toplam 209 tip 2 diyabet hastası katıldı. Katılımcıların yaş ortalaması 53,5±9,2 yıl ve %51,7'si kadındı. Katılımcıların DYKÖ puan ortalaması 3,8±0,7 bulundu. MMÖ ortalama puanı 4,09±2,09 bulundu. Katılımcılardan evli olanların, gelir durumu orta-yüksek olanların, diyabet tanı süresi <5 yıl olanların, diyabet komplikasyonu olmayanların, diyabet tedavisi olarak sadece oral antidiyabetik kullananların, diyabet ilaçlarını düzenli kullananların, diyabete yönelik diyet ve egzersiz yapanların ve diyabet kontrollerine düzenli gidenlerin yaşam kalitesi daha yüksek bulundu ($p<0,05$). MMÖ ilaç uyumu motivasyon düzeyi ve bilgi düzeyi yüksek olanların yaşam kalitesi daha yüksek bulundu ($p<0,01$).

Sonuç: Katılımcıların ilaç uyumu motivasyon ve bilgi düzeyleri artan yaşam kalitesi ile ilişkiliydi. Diyabet kontrolleri için birinci basamağa başvuru yüksek yaşam kalitesi ile ilişkiliydi.

Anahtar kelimeler: diabetes mellitus, yaşam kalitesi, tedavi uyumu, birinci basamak

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Introduction

Type 2 diabetes mellitus (DM) is the most frequently seen form of diabetes, representing more than 90% of all cases of diabetes worldwide. According to the International Diabetes Federation (IDF) Atlas, the prevalence of diabetes in Türkiye has increased from 8.1% in 2011 to 14.5% by 2021. Türkiye has the highest prevalence of diabetes among European countries and the highest number of cases.[1] Studies performed in Türkiye at 12-year intervals indicated a striking 90% increase in the prevalence of DM.[2]

Medication adherence among patients with diabetes ranged from 36% to 93%.[3] Patients with poor medication adherence have a greater risk of developing complications capable of affecting their quality of life and health status.[4] The development of complications in patients with type 2 DM can be prevented to a significant extent through lifestyle modifications and good medication adherence.[5] Treatment adherence, regular health follow-up, healthy nutrition, and regular physical exercise are essential to keep diabetes under control. However, patients with diabetes may not always comply with the treatment and lifestyle modifications. This leads to several adverse health outcomes such as increased risks of hospitalization, morbidity, and mortality.[6]

Targeted interventions and a better understanding of non-adherence have been shown to be required in order to improve medication compliance in patients with diabetes.[7] Lifelong treatment affects the quality of life of diabetic patients. Therefore, quality of life is an essential indicator for evaluating the effectiveness of any disease management plan.[8] Medication adherence is also an essential determinant of the diabetes-specific quality of life. Better quality of life among patients is associated with better medication adherence.[9] Studies examining the quality of life and medication adherence of patients with type 2 DM have largely been conducted in secondary and tertiary health institutions.[4,9,10] The present study aimed to examine the relationship between quality of life and medication adherence in patients with type 2 DM presenting to primary healthcare centers.

Material and Methods

Study design and participants

This cross-sectional, descriptive study was conducted between July and September 2022 in four units of two education family health centers (E-FHCs) affiliated with Ondokuz Mayıs University. The study was carried out in two family medicine units of Aziziye Education Family Health Center in İlkadım district and in two family medicine units of Pelitköy Education Family Health Center in Atakum district. The research population consisted of patients aged 18-65 diagnosed with type 2 DM at least one year previously and presenting to E-FHCs. There were 450 type 2 DM patients in that time period. The study sample was calculated with the Openepi program. The sample size was calculated as 208 with 95% confidence interval (α= 0.05), 5% margin of error, and 50% likelihood ratio. Of the 450 type 2 DM patients, 297 presented to the E-FHCs during the study period. Patients were accepted in the order they arrived. No sampling method was used. Eighty eight patients were excluded. Patients with diabetes other than type 2 or with obstacles to communication (such as mental disability, hearing problems, or speech difficulties) were excluded. Forty four patients were excluded because they were over 65 years of age, 38 patients were excluded because they did not want to participate, 3 patients were excluded because of communication problems, and 3 patients were excluded because they had diabetes other than type 2 DM. The participants were enrolled based on the order of their arrival at the clinic. This study was conducted in compliance with the principles of the Declaration of Helsinki. Ethics committee approval was obtained from Ondokuz Mayıs University Clinical Research Ethics Committee (OMÜKAEK 2022/251) prior to the study. The study had the approval of the Samsun Provincial Directorate of Health for the conduct of the study.

Data Collection Tools

The first two sections of the questionnaire were developed after a review of the relevant literature.[5,10-13] A 15-member pilot study was conducted using the created questionnaire. Any requisite amendments concerning comprehensibility and fluidity were then performed, after which the questionnaire assumed its final form. It consisted of four sections. The first consisted of eight items regarding the participant's sociodemographic characteristics. The second contained a participant declaration-based diabetes diagnosis, treatment, and follow-up form (11 items); the third contained the Diabetes Quality of Life (DQOL) scale (45 items); and the fourth contained the Modified Morisky Scale (MMS) (six items). The purpose of the study was explained to the participants at the beginning of the questionnaire, which was administered in a face-to-face manner.

The sociodemographic information form included age, sex, height, weight, marital status, income, education, occupation, and household members.

Participants' declaration-based diabetes diagnosis, treatment, and follow-up forms inquired the duration of the patient's diabetes, diabetes-related complications, information about diabetes, treatment methods, regular use of diabetes medications, frequency of physician follow-up, presentation to primary healthcare centers for follow-up, diet, and regular exercise.

Diabetes Quality Of Life (DQOL) Scale

The DQOL scale was developed by the Diabetes Control and Complications Trial Research Group.[14] It was adapted into Turkish by Yıldırım et al. Each response given regarding satisfaction, impact, and worries about diabetes is scored between 5 (very satisfied) and 1 (very dissatisfied). In contrast to the original scale, reverse scoring is applied for ease of interpretation. In contrast to the original version, higher scores on the Turkish version indicate a better quality of life. For a better quality of life scale, it is recommended that quality of life scores be converted to a score between 1 and 5.[11] The DQOL scale's Cronbach alpha coefficient in this study was, with subscale coefficients between 0.84 and 0.95.

Modified Morisky Scale (MMS)

The Morisky Scale was developed by Morisky et al. for the evaluation by family physicians of medication adherence in patients using antihypertensive drugs.[15] In the *"Case Management Adherence Guideline-1 (CMAG-1)"*, the Modified Morisky Scale (MMS) was developed by adding two more questions to the Morisky scale in order to better evaluate the drug-taking behavior and compliance results. It also assists with the classification of patients' medication adherence and motivation levels as high or low.[16] The scale was adapted into Turkish by Vural et al. It consists of six yes/no questions. Total scores from the three questions measuring motivation and knowledge levels of 0 or 1 indicate low motivation/knowledge, while scores of 2 or 3 indicate high motivation/knowledge.[13]

Statistical analysis

The study data were analyzed on IBM SPSS Statistics version 21.0 software. Categorical data were expressed as numbers and percentages, and continuous variables were expressed as mean±standard deviation. The chi-square test was used to compare categorical data. Data distribution was assessed with tests and graphics. Continuous variables exhibiting normal distribution were compared using the independent samples t-test and ANOVA. The relationship between medication adherence and quality of life was assessed using correlation analysis. The main and interaction effects of medication adherence motivation and knowledge levels on the quality of life subdimensions were evaluated using MANOVA. p values <0.05 were regarded as statistically significant.

Results

A total of 209 patients with type 2 DM participated in this study. The participants' mean age was 53.5±9.2 years, 51.7% were women, 77.5% were married, 59.8% had a moderate perceived income level, 16.7% lived alone, and 38.8% had been diagnosed with diabetes less than five years previously. In addition, 76.6% of patients were using only OAD for the treatment of diabetes, while 45.9% were in diets for diabetes, and 33.5% performed exercise. Additionally, 45.5% of the patients presented to a primary healthcare centers for diabetes follow-up (Table 1).

Table 1: *Characteristics of the participants*

Variable	Category	n (%)
Sex	Male	101 (48.3)
	Female	108 (51.7)
Marital status	Married	162 (77.5)
	Unmarried	47 (22.5)
Education level	High school or above	104 (49.8)
	Elementary school or lower	105 (50.2)
Perceived income level	Low	71 (34.0)
	Moderate	125 (59.8)
	High	13 (6.2)
Living alone	No	174 (83.3)
	Yes	35 (16.7)
Duration of type 2 DM	<5 years	81 (38.8)
	5-10 years	67 (32.0)
	>10 years	61 (29.2)
Diabetes complications	Yes	42 (20.1)
	No	167 (79.9)
Information received about diabetes	Yes	178 (85.2)
	No	31 (14.8)
Diabetes treatment	OAD alone	160 (76.6)
	OAD and insulin	36 (17.2)
	Insulin alone	13 (6.2)
Regular use of diabetes medications	Yes	154 (73.7)
	No	55 (26.3)
Diet for diabetes	Yes	96 (45.9)
	No	113 (54.1)
Exercise for diabetes	Yes	70 (33.5)
	No	139 (66.5)
Frequency of diabetes follow-up	Once every 3 months	44 (21.1)
	Once every 6 months	57 (27.3)
	Once a year	54 (25.8)
	Irregular	54 (25.8)
Presentation to primary healthcare centers for diabetes follow-up	Yes	95 (45.5)
	No	114 (54.5)

In this study, 31.1% of the participants had a low level of medication adherence motivation on the MMS, and 28.7% had a low level of medication adherence knowledge. The participants' mean total DQOL score was 3.8±0.7, while mean DQOL subdimension scores were 3.5±0.9 for satisfaction with treatment, 3.7±0.7 for the psychological impact of treatment, 3.9±0.9 for diabetes-related worry, and 4.6±0.6 for social/vocational worry. All DQOL scores were higher among participants with higher medication adherence motivation and knowledge levels ($p<0.001$) (Table 2).

Participants educated to high school level or above ($p<0.001$), with moderate-high perceived income levels ($p=0.008$), with durations of DM shorter than five years ($p=0.033$), with no diabetes complications ($p<0.001$), who had been informed about diabetes ($p<0.001$), who used only oral antidiabetic drugs (OADs) as diabetes treatment ($p=0.003$), and who attended regular diabetes follow-up ($p<0.001$) registered higher satisfaction with treatment scores (Table 2).

The psychological impact of treatment scores were higher among participants educated to high school level or above ($p<0.001$), with moderate-high perceived income levels ($p=0.026$), with durations of DM shorter than five years ($p=0.001$), with no diabetes complications ($p<0.001$), who had been informed about diabetes ($p=0.006$), who used only OADs as diabetes treatment ($p<0.001$), who attended regular diabetes follow-up once every three or six months ($p<0.001$), and who presented to primary healthcare centers for diabetes follow-up ($p=0.019$) (Table 2).

Diabetes-related worry scores were higher among male participants ($p=0.020$), married individuals ($p=0.001$), those educated to high school level or above ($p=0.001$), with moderate-high perceived income levels ($p<0.001$), who did not live alone ($p<0.001$), among those with durations of DM shorter than five years compared to those with durations of 10 years or longer ($p=0.017$), those without diabetes complications ($p<0.001$), who had been informed about diabetes ($p=0.005$), who used only OADs as diabetes treatment ($p<0.001$), who attended regular diabetes follow-up once every three or six months ($p<0.001$), who used diets for diabetes ($p<0.001$), who performed exercise for diabetes ($p<0.001$), and who regularly used diabetes medications ($p<0.001$) (Table 2).
Social/vocational worry scores were higher among married participants ($p=0.003$), those not living alone ($p=0.003$), participants without diabetes complications ($p=0.005$), who had been informed about diabetes ($p=0.033$), who used only OADs as diabetes treatment ($p<0.001$), who attended regular diabetes follow-up ($p=0.001$), who used diabetes medications regularly ($p<0.001$), and who presented to primary healthcare centers for diabetes follow-up ($p=0.041$) (Table 2).

Participants with durations of DM shorter than five years had higher DQOL scores than the others ($p=0.006$). Total DQOL scores were higher among participants with no diabetes complications, who had been informed about the disease, who used only OADs as diabetes treatment, who used diabetes medications regularly, who used diets and exercise for diabetes, and who attended diabetes follow-up once every three or six months ($p<0.001$). Participants attending primary healthcare centers for diabetes follow-up also had higher total DQOL scores ($p=0.025$) (Table 2).

Table 2. *A comparison of participants' DQOL scale (and subdimension) scores according to their sociodemographic characteristics and medication adherence motivation/ knowledge*

Variable	Category	Satisfaction		Impact		Worry: diabetes related		Worry: social/vocational		Total DQOL score	
		Mean±SD	p*	Mean±SD	p*	Mean±SD	p*	Mean±SD	p*	Ort±SS	p*
Sex	Male	3.5±0.9	0.995	3.8±0.7	0.140	4.1±0.9	**0.020**	4.6±0.6	0.221	3.8±0.7	0.275
	Female	3.5±0.9		3.6±0.7		3.8±0.9		4.5±0.6		3.7±0.7	
Marital status	Married	3.5±0.9	0.153	3.8±0.7	0.096	4.1±0.8	**0.001**	4.7±0.5	**0.003**	3.9±0.6	**0.037**
	Unmarried	3.3±0.9		3.5±0.8		3.5±1.0		4.3±0.8		3.6±0.8	
Education	High school or above	3.7±0.9	**<0.001**	3.9±0.6	**<0.001**	4.1±0.9	**0.001**	4.6±0.6	0.931	4.0±0.6	**<0.001**
	Elementary school or lower	3.3±0.9		3.5±0.7		3.7±0.9		4.6±0.5		3.6±0.7	
Perceived income level	Low	3.3±0.9a	**0.008**	3.6±0.7a	**0.026**	3.6±1.0a	**<0.001**	4.5±0.5	0.317	3.6±0.7a	**0.005**
	Moderate	3.6±0.9b		3.8±0.7b		4.1±0.8b		4.6±0.6		3.9±0.6b	
	High	4.1±0.8b		4.0±0.6b		4.4±0.7b		4.8±0.3		4.2±0.6b	
Living alone	No	3.5±0.9	0.438	3.8±0.7	0.135	4.0±0.9	**<0.001**	4.6±0.5	**0.003**	3.8±0.6	0.086
	Yes	3.4±0.9		3.5±0.8		3.4±1.0		4.3±0.7		3.6±0.8	
Duration of type 2 diabetes	<5 years	3.7±0.9a	**0.033**	3.9±0.6a	**0.001**	4.1±0.8a	**0.017**	4.6±0.6	0.589	4.0±0.6a	**0.006**
	5-10 years	3.4±0.9b		3.6±0.7b		3.8±0.9ab		4.6±0.5		3.7±0.6b	
	>10 years	3.3±0.9b		3.5±0.7b		3.7±0.9b		4.5±0.7		3.6±0.7b	
Diabetes complications	Yes	3.1±0.9	**<0.001**	3.3±0.7	**<0.001**	3.3±0.9	**<0.001**	4.3±0.7	**0.005**	3.4±0.7	**<0.001**
	No	3.6±0.9		3.8±0.6		4.1±0.8		4.7±0.5		3.9±0.6	
Receipt of information about diabetes	Yes	3.6±0.9	**<0.001**	3.8±0.7	**0.006**	4.0±0.8	**0.005**	4.6±0.6	**0.033**	3.9±0.8	**<0.001**
	No	3.0±1.0		3.4±0.8		3.4±1.0		4.4±0.7		3.4±0.8	
Diabetes treatment	OADs alone	3.6±1.0a	**0.003**	3.9±0.6a	**<0.001**	4.1±0.9a	**<0.001**	4.7±0.5a	**<0.001**	3.9±0.6a	**<0.001**
	OADs and insulin	3.2±0.9b		3.2±0.8b		3.5±1.0b		4.4±0.7b		3.4±0.7b	
	Insulin alone	3.0±0.7b		3.2±0.6b		3.5±0.7b		4.1±0.8b		3.3±0.6b	
Regular use of diabetes medications	Yes	3.8±0.8	**<0.001**	3.9±0.6	**<0.001**	4.2±0.7	**<0.001**	4.7±0.5	**<0.001**	4.0±0.6	**<0.001**
	No	2.7±0.6		3.1±0.6		3.1±0.7		4.3±0.5		3.1±0.5	
Diet for diabetes	Yes	3.8±0.9	**<0.001**	3.9±0.6	**<0.001**	4.2±0.7	**<0.001**	4.7±0.5	0.053	4.0±0.6	**<0.001**
	No	3.2±0.9		3.5±0.7		3.7±0.9		4.5±0.6		3.6±0.7	
Exercise for diabetes	Yes	3.8±0.9	**<0.001**	3.9±0.6	**0.001**	4.3±0.7	**<0.001**	4.7±0.5	0.080	4.0±0.6	**<0.001**
	No	3.3±0.8		3.6±0.7		3.7±0.9		4.5±0.6		3.7±0.7	
Frequency of diabetes follow-up	Once every 3 months	3.8±1.0a	**<0.001**	4.0±0.7a	**<0.001**	4.3±0.7a	**<0.001**	4.7±0.6a	**0.001**	4.1±0.7a	**<0.001**
	Once every 6 months	3.8±0.8a		4.0±0.5a		4.3±0.7a		4.7±0.4a		4.0±0.5a	
	Once a year	3.5±0.8a		4.0±0.7b		3.7±0.9b		4.6±0.5a		3.7±0.7b	
	Irregular	3.0±0.8b		3.4±0.7b		3.4±1.0c		4.3±0.7b		3.4±0.7c	
Presentation to primary healthcare centers for diabetes follow-up	Yes	3.6±0.9	0.084	3.8±0.6	**0.019**	4.0±0.9	0.139	4.7±0.5	**0.041**	3.9±0.6	**0.025**
	No	3.4±0.9		3.6±0.7		3.8±0.9		4.5±0.6		3.7±0.7	
MMS level of motivation	Low	2.8±0.7	**<0.001**	3.1±0.6	**<0.001**	3.2±0.9	**<0.001**	4.3±0.6	**<0.001**	3.2±0.6	**<0.001**
	High	3.8±0.8		4.0±0.5		4.3±0.7		4.7±0.5		4.1±0.5	
MMS level of knowledge	Low	2.7±0.7	**<0.001**	3.1±0.6	**<0.001**	3.1±0.8	**<0.001**	4.3±0.6	**<0.001**	3.2±0.5	**<0.001**
	High	3.8±0.8		4.0±0.6		4.2±0.7		4.7±0.5		4.0±0.6	

a-c No significant difference between similar letters in categories in the same column
*Independent samples t-test for two groups and ANOVA for groups of three or more

Positive correlations were observed between medication adherence motivation and knowledge scores and all DQOL scores (Table 3).

Table 3: Correlation analysis of medication adherence motivation/knowledge levels and the DQOL scale

	Total DQOL score	**Satisfaction**	**Impact**	**Worry: diabetes related**	**Worry: social/vocational**
Level of motivation	0.598*	0.505*	0.584*	0.552*	0.371*
Level of knowledge	0.602*	0.542*	0.567*	0.555*	0.329*

* $p<0.01$, Pearson correlation

The main effect of medication adherence motivation level was significant for all DQOL dimensions. The greatest effect of medication adherence motivation alone was on the psychological impact of the treatment dimension (η^2:0.141, $p<0.001$). The main effect of medication adherence knowledge was also significant for all the DQOL dimensions. The greatest effect of medication adherence knowledge levels alone was on the satisfaction with treatment dimension (η^2:0.128, $p<0.001$). The interaction effect of medication adherence motivation and medication knowledge levels on DQOL dimensions was only significant on satisfaction with treatment (η^2:0.022, $p=0.035$) (Table 4).

Table 4: Relation between medication adherence motivation and knowledge levels and quality of life

Factor	**Scale scores**	**Type III Sum of Square**	**df**	**Mean Square**	**F**	**P***	**η^2**
Level of motivation	Satisfaction[a]	7.009	1	7.009	13.447	**<0.001**	0.062
	Impact[b]	9.563	1	9.563	33.523	**<0.001**	0.141
	Worry: diabetes related[c]	13.63	1	13.63	27.374	**<0.001**	0.118
	Worry: social/vocational[d]	2.795	1	2.795	9.901	**0.002**	0.046
Level of knowledge	Satisfaction	15.66	1	15.66	30.045	**<0.001**	0.128
	Impact	7.981	1	7.981	27.978	**<0.001**	0.120
	Worry: diabetes related	13.924	1	13.924	27.966	**<0.001**	0.120
	Worry: social/vocational	1.355	1	1.355	4.799	**0.030**	0.023
Level of motivation* Level of knowledge	Satisfaction	2.361	1	2.361	4.529	**0.035**	0.022
	Impact	0.007	1	0.007	0.025	0.875	0.000
	Worry: diabetes related	0.319	1	0.319	0.642	0.424	0.003
	Worry: social/vocational	0.379	1	0.379	1.343	0.248	0.007

[a]R^2=0.353; [b]R^2=0.412; [c]R^2=0.381; [d]R^2=0.151; (df: degree of freedom, η^2: Partial eta squared), *MANOVA

Discussion

Quality of life and treatment adherence are the most critical factors in the comprehensive care of patients with DM. Quality of life is regarded as an essential indicator of the course of the disease in DM.[17] Medication adherence can represent a significant problem in these patients.[18] Therefore, the evaluation of the quality of life and medication adherence of patients with DM has acquired considerable importance in recent years. This study investigated the relationship between quality of life and medication adherence in patients with type 2 DM receiving primary healthcare centers in the Turkish province of Samsun.

The great majority of the participants in this study used their diabetes medications regularly. Studies by Bradley et al. and Pinto et al. reported similar rates of patients with good medication adherence to those in the present research.[19,20] Jaam et al. reported that most patients with uncontrolled diabetes did not adhere to treatment in their study.[12] Trief et al. reported much poorer adherence to treatment among young adolescents diagnosed with type 2 diabetes than among adults.[21] In the present study, medication adherence was higher among participants education to high school level or above, who used diet and exercise for diabetes, and who had been informed about the disease.

The mean DQOL score in this study was higher than those reported by Akıncı et al. and Diriba et al.[10,22] This may be due to the different sociocultural levels in the regions where the studies were conducted. The lowest DQOL subscale score in this study was for satisfaction with treatment, and was similar to that in Akıncı et al.[10] The highest

DQOL score in this study was for social/vocational worry, and was similar to that reported by Diriba et al.[22] The lowest score being in the satisfaction with treatment dimension may be due to the majority of patients using OADs, to the lengthy and complex treatment process in diabetes, and to the difficulty in lifestyle modification and treatment adherence.

Married individuals in this study registered higher diabetes-related worry, social/vocational worry, and total DQO scores. The quality of life of married individuals was also observed to be higher in other studies.[23,24] The patients' quality of life in this study also increased in line with education levels and income levels. Essentially, quality of life was higher in patients with higher socioeconomic levels. Previous studies have also found that quality of life increases as education and income levels rise.[17,22,24] This may be due to patients with higher levels of education possessing greater information about their own disease and their therapeutic regimens.

In this study, 54.5% of patients went to health care facilities other than primary care for diabetes follow-up. This may be due to the fact that some OADs and most insulins cannot be reported by primary care physicians in our country. Another reason for this may be that patients in Turkiye have easy access to physicians in the secondary and tertiary care settings because they are free to apply to any institution they want.

Patients with type 2 DM diagnosed less than five years previously had better quality of life scores, with the exception of the social/vocational worry subdimension. Other studies have also shown that quality of life declines with the duration of diabetes.[20,24] The absence of any difference in the social/vocational worry subdimension depending on the duration of diabetes may be attributable to a large proportion of participants being married, with children, retired, or homemakers. All DQOL scores were lower among patients with type 2 DM-related complications. Other studies have also found that the presence of complications has an adverse effect on the quality of life.[10,24] With the exception of the social/vocational worry subdimension, all DQOL scores were significantly higher among patients using diet and exercise for their diabetes. Other studies have also reported a higher quality of life among dieters and exercisers.[17,25,26] This may be due to diabetes-related symptoms and complications emerging less or later among patients with good adherence to lifestyle modifications. Akyol et al. found that there was a negative significant correlation between nutritional literacy individuals with diabetes. This situation may decrease the quality of life with poor diet in societies with low sociocultural level.[27] Thomas et al. found the diet quality of type 2 diabetes patients to be very poor and reported that a diet suitable for their socioeconomic level should be recommended in primary care.[28]

Quality of life also varied in terms of the treatment regimens employed for diabetes. The quality of life was significantly higher in patients using OADs alone than in those using OADs and insulin in combination or insulin alone. However, no significant difference in quality of life was determined between patients using a combination of OADs and insulin and those using only insulin. Akıncı et al. reported lower quality of life in patients receiving insulin therapy.[10] In Kumar et al.'s study, the quality of life of patients receiving an OAD regimen only was significantly higher than in those receiving a combination of OADs and insulin.[25] Similarly to the present study, Yumin et al. and Timar et al. also reported lower quality of life in patients receiving insulin therapy.[26,29] This may be due to the development of local complications in the insulin injection site, the hypoglycemia side-effect of insulin, and pain associated with insulin injection.

The quality of life in this study was higher among participants with higher medication adherence motivation and knowledge according to the MMS. A positive correlation was found between medication adherence motivation, knowledge level, and all the DQOL scores. However, the interaction effect of medication adherence motivation and knowledge levels only impacted on the satisfaction with the treatment DQOL dimension. In other words, medication adherence had no impact on the psychological effect or anxiety aspects of quality of life. Our literature review revealed no studies investigating medication adherence in patients with type 2 DM using the six-question MMS. In a study using the DAI-10 scale, Majeed et al. reported an association between good quality of life and better medication adherence in patients with type 2 DM.[30] Khayyat et al. investigated patients with hypertension and diabetes in primary care using the WHOQOL-BREF and MMAS-8 scales and observed better quality of life in individuals with high medication adherence.[5] Honish et al. found that quality of life increased in line with treatment adherence.[31] In a study employing the BMQ scale, Perwitasari et al. reported a positive correlation between medication adherence and quality of life in patients with type 2 diabetes.[32] Although medication adherence had an impact on satisfaction with the treatment dimension of quality of life, it had no effect on the psychological impact or worry dimensions. The biopsychosocial approach model of family medicine permits comprehensive diabetes patient management for the quality of life, psychological impact, and anxiety dimensions of diabetes patients. Comprehensive diabetes management in primary care provides an opportunity to evaluate the quality of life from different perspectives.

There are a number of limitations to this study. The first is that the data were collected only from individuals presenting to two E-FHCs in Samsun. The results may, therefore, only be representative of some of the Turkish population. A second limitation is that evaluation of quality of life was performed entirely within the scope of the

DQOL scale. A third limitation is that questions concerning the treatment and management of diabetes were restricted to patients' self-reports. In the present study, complications and medication adherence were discussed, but metabolic parameters (haemoglobin A1C, fasting blood glucose, body mass index and lipid parameters) were not included. The strength of this study is that our literature search revealed no previous studies evaluating the relationship between quality of life and medication adherence in patients with type 2 DM using the DQOL scale and MMS.

Conclusion

In conclusion, according to the results of our study on diabetic patients, it was found that drug compliance and quality of life were better in those with higher education levels, those with good socioeconomic status, those who had diet and exercise, those with low complication rates, and those who only used OAD. Since diabetes is a chronic disease with continuity, it requires constant care. Therefore, it can be followed more closely with continuous care in family medicine. There are multiple factors affecting the quality of life of diabetic patients, and it is more appropriate to follow up with a person-centered approach rather than a disease-centered approach. Continuous follow-up of diabetic patients in primary care, where patient follow-up is carried out with a biopsychosocial approach, can improve drug compliance and quality of life of patients.

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Conflicts of Interest

The authors declare that they have no competing interests.

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The Effect of Acupuncture and Diet on Serum Leptin and Nesfatin-1 Levels in Overweight/Obese Individuals
Aşırı Kilolu/Obez Bireylerde Akupunktur Ve Diyetin Serum Leptin Ve Nesfatin-1 Düzeylerine Etkisi

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Abstract
Acupuncture applications and diet are frequently used in obesity treatment. We aimed to investigate the changes in serum leptin and nesfatin-1 levels measured before and after acupuncture and diet in overweight/obese individuals in the presented study. This interventional study was carried out on 90 overweight/obese patients. Participants were divided into three groups: Group 1 (Acupuncture), Group 2 (Diet), and Group 3 (Those who did not take any attempts to lose weight- control group). Serum leptin and nesfatin-1 levels were measured before and after the intervention.

The 30th days leptin values were significantly decreased in the acupuncture group (**p=0.040**) while they were significantly increased in the control group (**p=0.039**). It was detected that the nesfatin-1 values were significantly increased in both acupuncture **(p=0.032)** and diet groups **(p=0.017).** Also, body weights significantly decreased both in acupuncture **(p=0.032)** and diet groups **(p<0.001).** Our results support the effects of acupuncture treatment on appetite hormones. Further research on the mechanisms of endogenous and exogenous actions of the recently discovered hormones, leptin and nesfatin-1, are needed.

Keywords: Acupuncture, Diet, Leptin, Nesfatin-1, Obesity.

Özet
Akupunktur uygulamaları ve diyet obezite tedavisinde sıklıkla kullanılmaktadır. Sunulan çalışmada aşırı kilolu ve/veya obez bireylerde akupunktur ve diyet öncesi/sonrasında ölçülen serum leptin ve nesfatin-1 düzeylerindeki değişiklikleri araştırmayı amaçladık. Bu müdahele çalışması 90 kilolu/obez hasta üzerinde yapıldı. Katılımcılar üç gruba ayrıldı: Grup 1 (Akupunktur), Grup 2 (Diyet) ve Grup 3 (Kilo vermek için herhangi bir girişimde bulunmamış olanlar- kontrol grubu). Müdahale öncesi ve sonrası serum leptin ve nesfatin-1 düzeyleri ölçüldü. Akupunktur grubunda 30. gün leptin değerleri anlamlı olarak azaldı (p=0.040), 3. grupta ise anlamlı olarak arttı (p=0.039). Nesfatin-1 değerlerinin hem akupunktur (p=0.032), hem de diyet (p=0.017) gruplarında anlamlı olarak arttığı saptandı. Ayrıca vücut ağırlıkları hem akupunktur (p=0.032) hem de diyet gruplarında (p<0.001) anlamlı olarak azaldı. Sonuçlarımız akupunktur tedavisinin iştah hormonları üzerindeki etkilerini desteklemektedir. Yakın zamanda keşfedilen leptin ve nesfatin-1 hormonlarının endojen ve ekzojen etkilerinin mekanizmaları hakkında daha fazla araştırmaya ihtiyaç vardır.

Anahtar Kelimeler: Akupunktur, Diyet, Leptin, Nesfatin-1, Obezite.

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Introduction

Obesity is a global health problem that has spread rapidly all over the world in recent years. Besides, obesity raises the risk of health problems and adversely affects the quality of life and life expectancy.[1] The European Health Interview Survey reported that 36.9-56.7% of all women and 51-69.3% of all men were overweight or obese between 2008 and 2009.[2]

According to the Turkish diabetes epidemiology study (TURDEP-I) study, the prevalence of general obesity in Turkish adults was reported to be 22.3% between 1997and 1998. This rate was 30% for women and 13% for men.[3] Also, in the TURDEP-II study (2010), the overall prevalence of obesity among Turkish adults reached 31.2%. In the last 12 years, the prevalence of obesity has increased by 34% in women and 107% in men.[1,3,4]

The current treatment of obesity includes nutritional modifications, exercise, medications, acupuncture, surgical methods, and the combinations of these methods.[5]

Acupuncture based on traditional Chinese medicine since ancient China is a treatment method based on the stimulation of special ear or body points to regulate energy excess or deficiency. Most recently, acupuncture has been become a more widespread treatment method of obesity due to reasons such as ease of use and having almost no side effects.[5,6]

Leptin is a polypeptide consisting of 167 amino acids, which induces weight loss. The ob gene product leptin is an adipocyte tissue hormone and was first cloned from the adipose tissue in 1994 by Friedman (Rockefeller University). It has been determined that leptin limits weight gain by reducing food intake, and it circulates in plasma at levels that parallel the amount of body fat.[7]

Nesfatin-1, a satiation-inducing molecule found in the hypothalamus with 82 amino acids and a 9.7-kDa molecular weight, was first discovered in 2006 by Oh-I et al. Although the mechanisms of nesfatin-1 in relation to obesity have not been fully elucidated, it has been considered to interact with other anorexigenic molecules, in particular leptin or melanocortin.[8]

Leptin induces weight loss by both decreasing appetite and food consumption and increasing the activity and heat production.[7] Nesfatin-1, on the other hand, is useful in the physiological control of feeding behavior. It reduces the food intake by controlling the peristalsis of the gastrointestinal tract and therefore controls the body weight.[8]

Many non-pharmacological methods have been tried for obesity management and acupuncture has gained importance in the treatment of obesity with its promising results. The results of the literature review indicated that more research is needed on the mechanism of action of newly discovered hormones. In this study presented in this context, we examined the effects of acupuncture and diet on serum leptin and nesfatin-1 levels in overweight/obese subjects.

Materials and Methods

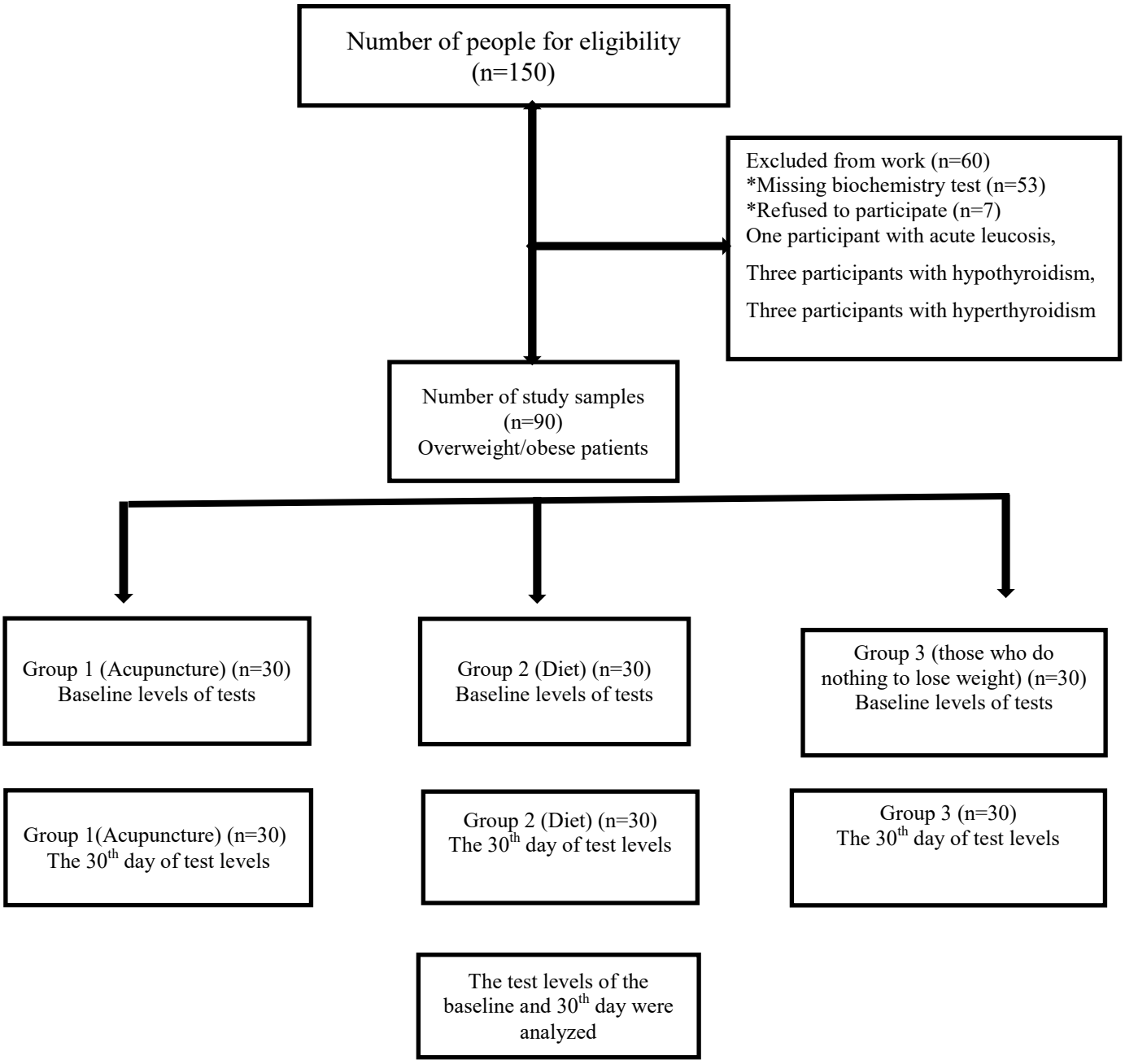
The type, place, and population of the study

This intervention study was carried out in the family medicine outpatient clinic between February 2018 and March 2018. A total of 150 participants were included in the study. One participant with acute leucosis, one participant with hypothyroidism, three participants with hyperthyroidism, and 55 participants who did not want to give a control blood sample were excluded from the study. Hence, the study was completed with 90 participants.

Sample and sampling method

In our study, the number of subjects included in the study was calculated using $n=t^2.p.q/d^2$ formula because the number of individuals in the universe was not known. According to this calculation, 90 women were included in our study.Individuals were assigned randomly to groups with equal chances. Based on random number tables, the participants were enrolled in the study after checking for the inclusion criteria, and were arranged into pairs matched by gender and body mass index (BMI) category. Using random numbers, pairs were randomly divided into three equal groups (n=30). The groups consisted of 30 individuals. The first group included the participants who received acupuncture (Group 1: Acupuncture group), the second group included those who applied to have a diet program (Group 2: Diet group), and the third group included those who did not take any attempts to lose weight (Group 3: Control group). Participants in Group 1 were referred to the Department of Traditional and Complementary Medicine for losing weight. Measurements were repeated after 30 days. The patients had information about the intervention. Seven patients were excluded as they stated that they would not continue the study.

WORKING FLOW CHART



Exclusion criteria

Patients who had a pregnancy, acute coronary artery disease, diabetes mellitus, liver and renal failure, depression, anxiety, severe psychotic disorders, malignancy, immunodeficiency, obstructive sleep apnea, and chronic obstructive pulmonary disease were excluded from the study. Those with body mass index (BMI) below 25 kg/m^2 were not included in the study.

Ethical considerations

Ethical approval for the study was obtained from the Meram Medical Faculty Ethics Committee (Approval date: 14.07.2017, number: 2017/998).

The participants were duly informed, and written and oral consent was obtained according to the principles of the Helsinki Declaration.

Anthropometric measurements

Height, weight, and waist circumferences of the participants were measured and recorded. Participants' height and weight were measured in a standing position with a standard stadiometer (Seca GmbH & Co. KG., Hamburg, Germany) after they were asked to take off their shoes and thick clothing. The BMI was calculated with the formula (BMI)=weight (kg)/height (m^2). The participants were categorized according to the BMI levels as thin (<18.5 kg/m^2), normal weight (18.5-24.9 kg/m^2), overweight (25-29.9 kg/m^2), and obese (30 and over kg/m^2).

Evaluation of body composition

A Bioelectrical Impedance Analysis device (Tanita InnerScan Body Composition Monitor, Tokyo, Japan) was used to measure and evaluate the body composition of the participants. Body fat mass, total body water, bone mass, muscle mass, basal metabolic rate (BMR), and visceral fat rating of participants were determined.

Content and application of the diet program

Daily energy requirements were calculated based on age, gender, weight, and height of the diet group. A personalized weight-loss plan was prepared by the nutrition and dietetics department. Care was taken to ensure that the energy content of the diet was not less than the rate of individuals resting energy expenditure (REE), in other words, basal metabolic rate (BMR). No additional products or substances were used for losing weight. After calculating the daily energy requirements (kilocalories), care was taken to ensure that the dietary contents were in compliance with the requirements in terms of carbohydrate (gr), protein (gr), fat (gr), vitamins, and minerals. The daily energy distribution was composed of 55-60% carbohydrates, 12-15% protein, 25-30% fat, and special diet programs were prepared for each individual. The contents of the diet consisted of foods in the healthy food pyramid.

Collection of blood samples

Blood samples after 12-hours fasting were collected at the beginning and end of the study from all participants. Blood samples were centrifuged at 4°C and 1000xg for 10 minutes by using a cooled centrifuge (Hettich Rotina 46R, Hettich Zentrifugen, Tuttlingen, Germany). The supernatant serum was separated and stored at a -80°C deep freezer (New Brunswick UC50, New Brunswick Scientific, New Jersey, USA) for leptin and nesfatin-1 analysis. Before and after the intervention, fasting blood sugar (FBS), total cholesterol (TC), triglyceride (TG), high-density lipoprotein cholesterol (HDL-c), low-density lipoprotein cholesterol (LDL-c) values were measured on the day of blood collection in each patient. Serum samples were stored at -80 °C in a New Brunswick U570 (New Brunswick Scientific, New Jersey, USA) refrigerator until leptin and nesfatin-1 levels were measured.

Serum leptin and nesfatin-1 levels were measured by enzyme-linked immunosorbent assay (ELISA) according to the procedures supplied by the Elabscience, China (E-EL-H0113 and E-EL-H2373, respectively).

Serum samples were used to determine leptin concentration, which was measured using a commercial Human Leptin ELISA Kit (Elabscience Biotechnology Co., Wuhan, China) according to the manufacturer's protocol (the intra-assay coefficients of variation (CV) and inter-assay CV were <5,59% and <6,21%, respectively). Serum samples were used to determine nesfatin-1/NUCB2 concentration, which was measured using a commercial Human Nesfatin-1 ELISA Kit (Elabscience Biotechnology Co., Wuhan, China) according to the manufacturer's protocol (the intra-assay CV and inter-assay CV were <5,54% and <6,73%, respectively). The human nesfatin ELISA Kit was particularly specific to nesfatin-1/NUCB2.

Determination of acupuncture points

There are different application points for acupuncture therapy. These points can be determined by different systems. In the traditional Chinese medical approach, which is the origin of acupuncture, "personal cun" was used as a measurement unit. The length between the phalanges of the middle finger of the patient gives the patients' personal cun. In traditional acupuncture, cun measurements are used to determine the locations of acupuncture points. On the other hand, parallel with the developments in technology, electronic devices based on the electrical properties of acupuncture points was developed in recent years. The point finder electrodes of these devices produce signals when they pass over an acupuncture point.[9] In this study, both the traditional cun measurement and acupuncture point detection with the electronic Agiskop DT (Agiscop DT point detector, Sedatelec, Lyon, France) device were used.

Acupuncture application points

Body and auricular acupuncture application were used in this study. The acupuncture points were cleaned with alcohol and then dried with clean cotton. Shen Men, and stomach ear points were selected for auriculotherapy. The following traditional Chinese medicine points were used for body acupuncture: Quchi (LI-11), Nei Guan (P6), ZuSanLi (St36), Neiting (St44), Taichong (Liv 3), and Yin-Tang.

Acupuncture therapy

Body acupuncture therapy was administered as two sessions per week for four weeks. Each treatment session lasted approximately 20 minutes. In these treatment sessions, sterile stainless steel acupuncture needles for single-use (0.25x50 mm, 0.25x25 mm, and 0.22x13 mm, Hua Long, Chiana) were used for body acupuncture points applying the electroacupuncture method. Auricular acupuncture was administered as one session per week for four weeks. Acupuncture points in each session were determined by the Agiskop DT device. Semi-permanent ear acupuncture needles (0.24x1.5 mm, Hua Long, Chiana) were used in each session.

Statistical analysis

Statistical analysis was performed with the Statistical Package for the Social Sciences (SPSS, version 20). As descriptive statistics, mean and standard deviation were used for continuous variables, frequency and percentage were used for the categorical variables. Chi-square test was used to compare the categorical data. The One-Way ANOVA (for normally distributed variables) test was used to compare more than two independent groups. The paired samples t-test (for normally distributed variables) was used to compare the differences between paired samples. Results were evaluated at a 95% confidence interval, a significance level of $p<0.05$.

Results

The sociodemographic characteristics of the participants in the study were shown in Table 1. Table 2 summarized the comparison of leptin and nesfatin-1 values measured on the 0th and 30th day. There was no difference among the three groups regarding nesfatin-1 measured at the beginning and end of the study (p=0.966[ab]), (p=0.200[ac]), (p=0.122[bc]). On the other hand, the before and after intervention nesfatin-1 values were increased in the diet **(p=0.017[b])** and acupuncture groups **(p=0.032[a])** (Table 2).

Table 1. *Sociodemographic characteristics of the participants*

	Acupuncture		**Diet**		**Control**		**Total**	**χ^2**	**p***
	n	%	n	%	n	%			
Gender									
Male	15	34,1	14	31,8	15	34,1	44	0,089	0,956
Female	15	32,6	16	34,8	15	32,6	46		
Education status									
≤High school	12	23,5	16	31,4	23	45,1	51	8,729	**0,013**
> High school	18	46,2	14	35,9	7	17,9	39		
Employment status									
Employed	22	48,9	14	31,1	9	20,0	45	11,864	**0,003**
Unemployed	8	17,8	16	35,6	21	46,7	45		
Marital status									
Married	29	38,7	23	30,7	23	30,7	45	7,140	**0,028**
Single	1	6,7	7	46,7	7	46,7	15		

* Chi-square test was used.

Table 2. *Comparison of leptin and nesfatin-1 values measured on the 0th and 30thday*

	Acupuncture[a]	**Diet[b]**	**Control[c]**		
	Mean±SD	**Mean±SD**	**Mean±SD**	**F**	**p***
Leptin (ng/ml)					
Baseline	5.2±0.7	5.1±0.8	4.7±0.9	3102.112	0.527[ab] 0.157[ac] 0.719[bc]
30thday	4.5±1.1	4.8±1.2	5.0±0.9		
p**	**0.040**	0.177	**0.039**		
Nesfatin-1 (ng/ml)					
Baseline	21.6±12.6	23.3±16.2	22.3±10.4	284,740	0,966[ab] 0,200[ac] 0,122[bc]
30thday	26.8±16.5	27.7±18.2	19.2±9.1		
p**	**0.032**	**0.017**	0.149		

p*: One-way ANOVA, p**: Paired Samples t-test, SD: Standard deviation

There wasn't a relationship between the three groups in terms of leptin values measured at the beginning and on the 30th day (p= 0.527[ab], 0.157[ac], and 0.719[bc], for Group 1, 2, and 3, respectively). The baseline day-30 leptin were decreased in the acupuncture group **(p=0.040[a])** while they increased in the normal group **(p=0.039[c])**.
There was no difference between the three groups concerning FBS, total cholesterol, TG, HDL-c values measured at the baseline and day 30 (p>0.05) (Table 3). Conversely, a significant correlation was found between the acupuncture and control groups **(p=0.002[ac]),** as well as the diet and normal groups **(p=0.016[bc])** regarding LDL-c values.

Table 3.*Comparison of biochemical parameters measured on the 0th and 30thday*

	Acupuncture[a]	**Diet[b]**	**Control[c]**		
	Mean±SD	**Mean±SD**	**Mean±SD**	**F**	**p***
FBS (mg/dl)					
Baseline	103.3±21.9	95.4±8.7	101.1±18.2	3019.928	0.299[ab] 0.820[ac] 0.646[bc]
30thday	100.3±29.3	92.3±10.5	97.1±17.5		
p**	0.484	0.099	0.172		
T. Cholesterol (mg/dl)					
Baseline	200.8±41.8	187.9±31.1	220.1±39.7	2865,994	0,991[ab] **0,006[ac]** **0,004[bc]**
30thday	191.1±37.9	189.7±40.8	223.0±37.5		
p**	0.055	0.710	0.584		
TG (mg/dl)					
Baseline	207.7±181.6	122.1±61.2	165.7±110.9	211.563	0.104[ab] 0.959[ac] 0.180[bc]
30thday	179.2±128.3	124.2±61.2	171.8±108.2		
p**	0.215	0.833	0.743		
LDL-c (mg/dl)					
Baseline	117.7±32.9	114.8±28.6	139.8±35.6	1473.585	0.781[ab] **0.002[ac]** **0.016[bc]**
30thday	109.4±32.1	115.2±32.8	139.4±34.5		
p**	0.106	0.919	0.936		
HDL-c (mg/dl)					
Baseline	47.5±12.4	48.7±9.3	49.8±15.8	1151.107	0.999[ab] 0.435[ac] 0.454[bc]
30thday	48.8±13.9	48.9±7.6	54.4±26.0		
p**	0.235	0.800	0.254		

p*: One-way ANOVA, p**: Paired Sample t-test, SD: Standard deviation, FPS: Fasting plasma sugar, TG: Triglyceride, LDL-c: Low-density lipoprotein cholesterol, HDL-c: High-density lipoprotein cholesterol

There wasn't a direct relationship between the three groups regarding body weights measured on days 0 and 30 (p>0.05). However, body weights significantly decreased in the acupuncture and diet groups from day 0 to day 30 **(p=0.032[a]) (p<0.001[b])** (Table 4).
Same as the body weight results, there was no direct relationship between the three groups concerning BMI (p>0.05). The BMI values of the patients were statistically decreased in the diet group **(p<0.001[b])** (Table 4).
Considering the metabolic age values measured on day 0 and 30, a significant relationship was found between diet and control groups **(p=0.016[bc])**. Although the metabolic age values slightly decreased in the acupuncture and diet groups, this decrease was not significant (p=0.08) (Table 4).
The total fat values were reduced in acupuncture **(p<0.001[a])** and diet groups **(p<0.001[b]).** Similarly, also the visceral fat mass values were reduced in the acupuncture **(p<0.001[a])** and diet groups and (**p=0.048[b]**)**.** In the diet group, the fat ratios on the last day of the study was significantly reduced **(p=0.023[b]).** Muscle mass values of the patients measured on day 0 and 30 in the acupuncture group were significantly decreased **(p=0.022[a]).** Lastly, the total body water values were significantly increased in the acupuncture **(p=0.023[a])** and diet groups **(p=0.047[b])** (Table 4).

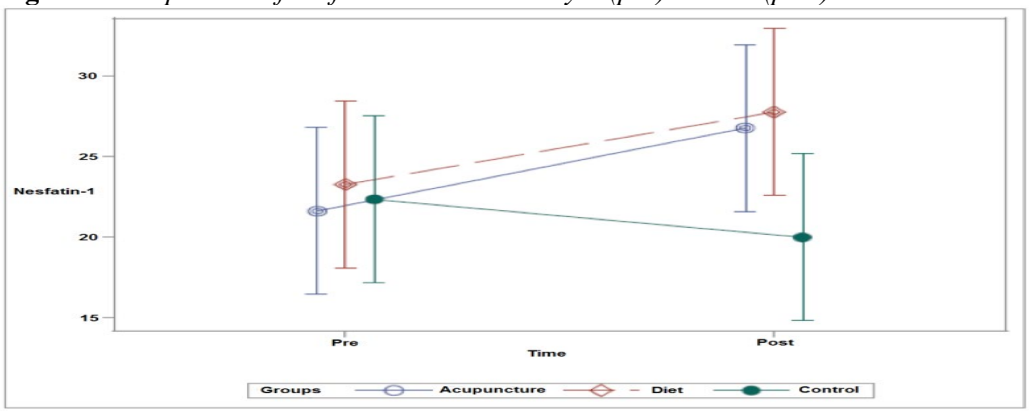
Table 4. *Comparison of body compositions measured on the 0th and 30th day*

	Acupuncture[a]	Diet[b]	Control[c]		
	Mean±SD	**Mean±SD**	**Mean±SD**	**F**	**p***
Body weight (kg)					
Baseline	91.9±17.5	90.5±16.2	90.3±18.5	2460.783	0.996[ab] 0.963[ac] 0.935[bc]
30th day	88.5±16.3	88.1±16.7	89.7±18.8		
p**	**0.032**	**<0.001**	0.130		
BMI (kg/m²)					
Baseline	31.5±5.2	31.3±5.2	31.4±4.9	3952.010	0.960[ab] 0.750[ac] 0.894[bc]
30th day	30.2±3.9	30.6±5.0	31.1±4.7		
p**	0.059	**<0.001**	0.129		
Metabolic age (year)					
Baseline	55.5±18.3	45.3±12.4	53.5±12.0	1529.836	0.112[ab] 0.701[ac] **0.016**[bc]
30th day	51.3±10.7	45.1±11.9	53.7±12.9		
p**	0.168	0.662	0.771		
Total fat mass (kg)					
Baseline	30.1±9.6	29.9±9.6	30.6±10.8	725.500	0.980[ab] 0.819[ac] 0.708[bc]
30th day	29.0±9.8	28.5±9.5	30.7±11.8		
p**	**<0.001**	**<0.001**	0.131		
Visceral fat mass (kg)					
Baseline	10.5±4.2	8.7±4.3	10.8±4.9	458.838	0.310[ab] 0.836[ac] 0.109[bc]
30th day	10.1±3.9	8.4±4.2	10.7±4.6		
p**	**<0.001**	**0.048**	0.639		
Fat ratio (%)					
Baseline	33.4±8.0	33.2±8.3	33.7±8.2	1486.462	0.984[ab] 0.908[ac] 0.827[bc]
Day 30th	32.8±8.7	32.5±8.2	33.7±7.9		
p**	0.121	**0.023**	0.961		
Muscle mass (kg)					
Baseline	57.2±13.1	56.7±13.1	55.5±10.4	1935.379	0.997[ab] 0.994[ac] 0.982[bc]
30th day	56.3±12.6	56.6±13.0	56.0±10.6		
p**	**0.022**	0.742	0.394		
Total body water (%)					
Baseline	47.1±4.9	47.5±5.5	46.8±5.2	7502.957	0.961[ab] 0.923[ac] 0.793[bc]
30th day	47.5±5.2	47.9±5.5	47.0±4.9		
p**	**0.023**	**0.047**	0.499		

p*: One-way ANOVA, p**: Paired Samples t-test, SD: Standard deviation, BMI: Body mass index

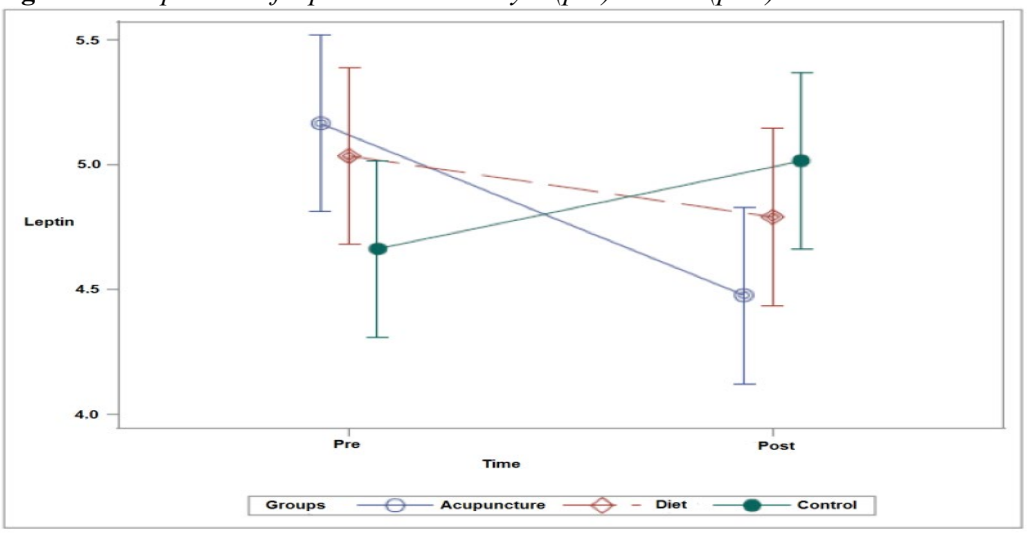
When the nesfatin-1 values before and after acupuncture were evaluated, the level of nesfatin-1 was decreased in the control, while it increased in the acupuncture and diet groups (Figure 1).

Figure 1.*Comparison of nesfatin-1 values on day 0 (pre) and 30 (post).*



Additionally, when pre-and post-measurements of leptin values were evaluated, the level of leptin was decreased in the acupuncture and diet groups, while it increased in the control group (Figure 2).

Figure 2.*Comparison of leptin values on day 0 (pre) and 30 (post).*



Discussion

To the best of our knowledge, this study is one of the most important studies in the literature comparing the effects of diet and acupuncture on appetite hormones and obesity. In the presented study, approximately 3.4 kg and 2.4 kg weight loss was observed in the acupuncture and diet groups, respectively. Qingfu et al. applied general body acupuncture treatment to 110 obese patients as one session per week for three months. They observed approximately 5.0 kg body weight loss.[10] In Cabioglu et al.'s study, there was a 4.5% weight reduction in the patients with acupuncture application, whereas patients on diet restriction had a 3.1% weight reduction.[11]

In a study performed by Considine et al., serum leptin levels were compared between control and obese participants and found as 7.5±9.3 ng/ml and 31.3±24.1 ng/ml, respectively.[12] In another study, some changes in the levels of appetite hormones were evaluated in 20 female patients with normal weight and obesity. The researchers found that serum leptin levels were higher in the obese compared to the controls.[13]

Weigle et al. reported a reduction in both weight and serum leptin in obese patients on a 700 kcal diet for three months.[14] In the study by Cabioglu et al., 20 female patients were given a diet of 1400 kcal, while 20 patients were given acupuncture for 20 days. In the same study, a 33.4% decrease was found in serum leptin levels in the acupuncture group and a 15.1% decrease was found in the diet group, with a 5.4% weight loss in the acupuncture and 2.8% in the diet group.[11] In the presented study, a weight loss of 3.7% was found in the acupuncture group and 2% in the diet group with a 13% decrease of serum leptin levels in the acupuncture and a 6% decrease in the diet group were determined. The 30th day leptin values were significantly decreased in the acupuncture group while they were significantly increased in the control group.

The difference between studies may probably be because of the limited study period and the differences in the diet programs. Daily acupuncture treatment and the 1400 kcal diet program may be the reasons for the differences. In a

study conducted by Özkan et al., participants were divided into five groups according to their BMI values and serum nesfatin-1 levels of each group were compared.[15]
Anwar et al. compared the fasting serum nesfatin-1 of 40 healthy and 40 obese adults in their study, and they detected that serum nesfatin-1 levels were higher in the obese compared to controls.[16] In another study, the level of nesfatin-1 was lower in obese participants than in normal participants.[17]
Deniz found a negative relationship between nesfatin-1 and BMI.[18] Similar to the aforementioned study, in a different study conducted on 50 adults, no relationship was found between BMI and nesfatin-1.[19] In the presented study, the levels of nesfatin-1 at the end of the study were increased from baseline both in the acupuncture and diet groups, while it was decreased in the normal weight group. A negative relationship was found between nesfatin-1 and BMI.
In the study performed by Guo, in obese and normal weight individuals, a negative relationship was found between BMI and nesfatin-1, hip and waist circumferences. After acupuncture and dietary restriction, the body weight of the participants decreased, while the levels of nesfatin-1 increased statistically.[20] Similarly, in the presented study, nesfatin-1 values were found to be increased by 24% in the acupuncture group and 18% in the diet group.
Unlike the results obtained in the present study, in Kara's study, leptin levels decreased in the group who lost weight with diet. In contrast, obestatin and nesfatin1 levels are not affected by weight loss.[21]
There was no difference between the groups concerning FBS, total cholesterol, TG, HDL-c values at the baseline and day 30. Conversely, a correlation was found between the acupuncture and control**,** as well as the diet and control regarding LDL-c values. In a study performed by Cabioglu, there were decreases in total cholesterol and triglyceride levels in acupuncture and diet groups compared to the controls. Furthermore, there was a decrease in LDL levels in the acupuncture group compared to the controls. No significant changes could be found in HDL levels among the three groups.[22]

Limitations of the study
This study group is not entirely representative of the Turkish population. The most important limitations of our study were the small group of participants and the short follow-up period. The fact that other appetite-related peptides (ghrelin and orexin-A) were not evaluated in the present study may be another limitation.

Conclusion and Recommendation
The results of this study support the effect of acupuncture treatment on appetite hormones. In addition to participants who were receiving diet therapy, the significance of the weight loss in the acupuncture group suggests that acupuncture can be used as an adjunct method for the treatment of obesity. Both the literature review and the results of this study have shown that there is a need for further research on the mechanisms of endogenous and exogenous actions of the recently discovered hormones, leptin and nesfatin-1. Also, further randomized controlled large-scale studies are required for supportive acupuncture therapy in the treatment of obesity. Nesfatin-1 appears to be a hope-promising target for the development of an effective medication in the treatment of obese individuals.

Contribution to the Field
The results of this study can give an idea about the endogenous and exogenous mechanisms of action of the newly discovered hormones, leptin and nesfatin-1. We think that this study will contribute to the literature by comparing the effects of diet and acupuncture on appetite hormones and obesity.

Ethical Aspect of the Research
All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Ethical approval for the study was obtained from the Necmettin Erbakan University Medical Faculty Ethics Committee (Approval date: 14.07.2017, number: 2017/998). Theparticipants were duly informed, and written and oral consent was obtained according to the principles of theHelsinki Declaration.

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Investigation Of Home Healthcare Patients' Attitudes And Behaviours Against Covid-19 Vaccines
Evde Sağlık Hastalarının Covıd-19 Aşılarına Karşı Tutum Ve Davranışlarının İncelenmesi

Ahmet EVCAN[1], Özge TUNCER[1]

Abstract
Introduction: We aimed to find the attitudes and behaviours of home health patients towards COVID-19 vaccines, the rates of vaccination, and the reasons for not getting the vaccine.
Method: This descriptive and cross-sectional study was conducted with patients who were accepted to join this research and reachable (N:1012) registered in the Home Health Services unit of a training and research hospital in Izmir between December 2021 and March 2022. The study was conducted by contacting the patient or their relatives by phone, visiting them at home, or applying a questionnaire during their application to the polyclinic unit. Questionnaire; It consists of 15 questions that help us learn the patient's sociodemographic characteristics, current health status, and attitudes and behaviors about vaccines. The prepared database has entered the IBMSPSS 24.0 program.
Results: The mean age of the participants in the study was 77.4±16.2 years. 68.6% of the participants were women. 63% of them are fully dependent on the bed. In our study, the rate of patients receiving the COVID-19 vaccine was 83.2%. 91.1% of the vaccinated individuals had the Sinovac vaccine, which was first provided to the patients. 66.1% of vaccinated individuals have accessed vaccination services at home. Those who have higher educational levels have higher vaccination rates. Those who received information from their family doctor were significantly more likely to be vaccinated. Participants most frequently stated that they were not vaccinated because they thought they did not have enough information about COVID-19 vaccines and were worried about possible side effects.
Conclusion: According to this study, patients registered with Home Care Unit have a high rate of getting the COVID-19 vaccine.
Keywords: COVID-19 Vaccines, Home Care Unit Patients, Vaccine Rejection

Özet
Giriş: Bu çalışma, Evde Sağlık hizmeti verilen hastaların COVID-19 aşılarına karşı tutum ve davranışlarını saptamak ve aşı yaptırma oranlarını bulmak amacıyla yapılmıştır.
Yöntem: Kesitsel tanımlayıcı tipteki bu çalışma; Aralık 2021-Mart 2022 tarihlerinde İzmir'de bulunan bir eğitim ve araştırma hastanesi Evde Sağlık Hizmetleri birimine kayıtlı olup ulaşılabilen ve çalışmayı kabul eden hastalar (n:1012) ile yapılmıştır. Çalışma, hasta veya hasta yakınlarına telefon ile ulaşılarak, evinde ziyaret edilerek ya da poliklinik birimine başvuruları sırasında anket uygulanarak yapılmıştır. Anket; hastanın sosyodemografik özelliklerini, güncel sağlık durumunu ve aşılar hakkında tutum ve davranışlarını öğrenmemize yardımcı olan 15 sorudan oluşmaktadır. Sonuçlar IBMSPSS24.0 istatistik programı ile analiz edilmiştir.
Bulgular: Katılımcıların yaş ortalaması 77,4±16,2 olup, %68.6'sı kadındır ve %63'ü yatağa tam bağımlıdır. Çalışmamızda hastaların COVID-19 aşısını yaptırma oranı %83,2 saptanmıştır. Aşı olan bireylerin %91,1'i hastalara ilk olarak temin edilen Sinovac aşısını yaptırmıştır. Aşı olan bireylerin %66,1'i evlerinde aşı hizmetine ulaşmışlardır. Eğitim düzeyi yüksek olanların aşı olma oranı istatistiksel olarak daha yüksek tespit edilmiştir. Aile hekiminden aşı ile ilgili bilgi alanların aşı yaptırma oranı anlamlı şekilde yüksektir. Katılımcılar en sık, COVID-19 aşıları ile ilgili yeterli bilgileri olmadığını düşündüklerinden ve olası yan etkilerinden endişe ettiklerinden aşı olmadıklarını belirtmişlerdir.
Sonuç: Evde Sağlık Hizmetlerine kayıtlı hastaların COVID-19 aşısını yaptırma oranı yüksek bulunmuştur
Anahtar Kelimeler: Aşı reddi, COVID-19 Aşıları, Evde Sağlık Hastaları

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Introductıon

Home Health Care Services (HHCS) is a service that includes general health and social services in many countries, especially in developed Western countries. According to the characteristics of the general health and social service systems of the countries, this service is provided by public institutions, private or voluntary organizations. Primary, secondary, and tertiary healthcare institutions establish organizations to provide home care services.[1] Home Health Care is the provision of multiple health and social services at a professional level in the place where the person lives to regain their health, improve it and protect it against complications that may develop in the future, for individuals with permanent or temporary disability, who need home treatment after discharge, or who are in the terminal period.[2] The service includes prescribing drugs documented with a health report in cases where individuals have drugs that need to be used for a long time, prescribing medical devices and materials, informing about the disease, care process, responsibilities of the patients and their families, and educating about the disease and home care.[3]

In December 2019, a pneumonia epidemic caused by a new type of coronavirus started in Wuhan city of Hubei province of China then spread to many countries in the world and was defined as a pandemic in February 2020. The first case in our country was detected on March 11, 2020.[4] Although almost all groups of society were affected by the pandemic, people over a certain age had the disease more severely or died due to this disease. To end the pandemic immediately and return to normal life, vaccination studies have started in many countries. In the first months of 2021, many countries have started mass vaccination to end the COVID-19 pandemic. Some vaccines (Pfizer-BioNTech, Sinovac, Moderna) have been approved in some countries for use as of December 2020. Sinovac (Coronavac) vaccine was approved for emergency use in Turkey on January 13, 2021, and the first vaccination in Turkey started on January 13, 2021. On January 27, 2021, the Sinovac vaccine was started to be administered in the home environment of patients through Home Health Services.[5] Health teams were built to vaccinate home health patients over the age of 65 at their homes. Only the Sinovac vaccine was administered to people who accepted to be vaccinated by the filiation teams and the Home Health Services teams. Then the Pfizer/BionTech mRNA vaccine was also started to be used in our country but not implemented at home due to storage(-60 to -80 ºC) and transport difficulties[6].

This study was conducted to determine the attitudes and behaviors towards COVID-19 vaccines and to find the vaccination rates of patients registered with Home Health Care Services, who are in the priority group and are likely to be affected by the COVID-19 pandemic.

Method

This descriptive and cross-sectional study was conducted in a training and research hospital in Izmir between December 2021 and March 2022. Permission for the study was received from the Ministry of Health and ethical approval was obtained from the clinical research ethics committee of the relevant training and research hospital (Decision number: 2021 / 166). The universe of the study consisted of all patients who were actively registered in the home health services unit of the hospital. There are 4043 registered patients in home health services.1012 patients or their relatives were contacted by phone, visited at home, and during their application to the outpatient clinic, they were informed about the study, and a questionnaire was applied to those who accepted. The questionnaire consists of 15 questions about the sociodemographic data of the patients, their bed dependency, their chronic diseases, and their attitudes and behaviors toward the COVID-19 vaccine. The work started when the vaccine was first applied at home. For this reason, the status of the application of the first dose vaccine was inquired. Information in the patient files was also used during the data collection phase. Information was obtained from the relatives of the patients who could not be contacted due to reasons such as dementia and cerebrovascular disease. IBMSPSS24.0 (Statistical Package for the Social Sciences) statistical program was used in the analysis of the study. Descriptive findings are given as numbers and percentages for categorical variables and mean and standard deviation for numerical variables. The chi-square test was used in the analysis. significance level was accepted as $p<0.05$.

Result

The average age of 1012 participants is 77.4, and 72.8% of them are 75 years old and over. 63% of the study population are bedridden people. 83.2% of the participants were vaccinated against COVID-19. Most of them (91.1%) were vaccinated with Sinovac. 96% of vaccinated people were vaccinated at the time the vaccine was defined for themselves in the system, and about half of the vaccinated later stated that they delayed it because they were waiting for a more reliable vaccine. 55.2% of the vaccines were administered by the vaccination teams at home, 17% at the Family Health Center (FHC), 16.9% at the hospitals, and 10.9% at home by the Home Health Services teams. Side effects occurred in 1.2% of vaccinated people. 1.4% stated that they had hesitation despite being vaccinated (Table 1).

Table1. *Characteristics of participants (n=1012)*

	n	%
Age(Mean±SD)	77.4±16.2	
Age Groups		
18-64	143	14.1
65-74	133	13.1
75-84	344	34
85+	392	38.8
Gender		
Female	694	68.6
Male	318	31.4
EDUCATIONAL STATUS		
No Formal Education	426	42.1
PRIMARY SCHOOL	527	52.1
MIDDLE SCHOOL	31	3.1
HIGH SCHOOL	20	2.0
UNIVERSITY	8	0.8
FUNCTIONAL STATUS		
TOTALLY BEDRIDDEN	638	63.0
PARTIALLY BEDRIDDEN	342	33.8
INDEPENDENT	32	3.2
HAVING CHRONIC DISEASE		
YES	952	94.1
NO	60	5.9
COVID-19 VACCINE STATUS		
VACCINATED	842	83.2
UNVACCINATED	170	16.8
VACCINE TYPE(N=842)		
SINOVAC	767	91.1
PFIZER/BIONTECH	75	8.9
Vaccination Time (N=842)		
IN DUE COURSE	808	96.0
LATER	34	4.0
REASON FOR DELAYED VACCINATION(N=34)		
WAITING FOR A MORE RELIABLE VACCINE	16	47.1
LEARNING ABOUT SIDE EFFECTS	5	14.7
TO SEE PROTECTION RATES	3	8.8
HAVE AN İNFECTION	7	20.6
Other*	3	8.8
Vaccination place/unit (n=842)		
Home / Filiation Team	465	55.2
Home / Home Health Services	92	10.9
Hospital	142	16.9
Family Health Center	143	17.0
Post-vaccine side effect (n=842)		
Yes	10	1.2
No	832	98.8
Hesitation despite vaccination(n=842)		
Yes	12	1.4
No	830	98.6

*Other option; includes reasons such as surgery, hospitalization, not following the vaccination time, and the doctor's disapproval due to diseases such as cancer.

Of the participants with chronic diseases, 54.4% had cardiovascular disease, 43.7% had a neurological disease, 29.2% had endocrinological diseases, 8.5% had respiratory system diseases, and 5.5% had cancer. Participants' knowledge about the vaccine was obtained from television (89.4%), other media (39.1%), family physician (17.9%), family (8%), neighbors (0.5%), and friends (0.4%). Unvaccinated participants were asked about their reasons for not being vaccinated; 34.1% stated that they did not have enough information about COVID-19 vaccines, 27.1% stated that they could not deal with the vaccine and its effects because they were old, and 25.3% stated they were taking adequate precautions against the disease. While 65% of the participants aged 18-64 were vaccinated, 86.2% of the people aged 65 and over were vaccinated. It was determined that people with primary school education levels and above were vaccinated at a higher rate than those who did not. The vaccination rate of bedridden persons was 78.7%. The vaccination rate of partially dependent/independent persons was higher and it was statistically significant (Table 2).

Table 2. *The distribution of sociodemographic characteristics of the participants according to their COVID-19 vaccination status*

Sociodemographic characteristics		Have you been vaccinated against COVID-19? n(%)		p
		Yes	**No**	
Age	18-64	93 (65.0%)	50 (35.0%)	<0.001*
	65-74	119 (89.5%)	14 (10.5%)	
	75-84	295 (85.8%)	49 (14.2%)	
	85+	335 (83.2%)	57 (16.8%)	
Gender	Male	266(83.6%)	52(16.4%)	0.797
	Female	576(83.0%)	118(17.0%)	
Educational Status	No formal education	342 (80.3%)	84 (19.7%)	0.034*
	Primary school and above	500 (85.3%)	86 (14.7%)	
Functional Status	Totally bedridden	502 (78.7%)	136 (21.3%)	<0.001*
	Partially bedridden/independent	340 (90.9%)	34 (9.1%)	
Having Chronic Disease	Yes	795 (83.5%)	157 (16.5%)	0.298
	No	47 (78.3%)	13 (21.7%)	

* p<0.05 Chi-square test was used in the analysis.

93.9% of participants who received information about the COVID-19 vaccine from their family doctor were vaccinated, and 80.9% of participants who did not receive information from their family doctor were vaccinated. The vaccination rate of those who received information from their family doctor was significantly higher (Table 3).

Table 3. *Distribution of COVID-19 vaccine information sources by participants' COVID-19 vaccination status*

Information Source		Have You Been Vaccinated Against COVID-19? n(%)		p
		Yes	**No**	
Television	Yes	748 (82.7%)	157 (17.3%)	0.174
	No	94 (87.9%)	13 (12.1%)	
Media	Yes	330 (83.3%)	66 (16.7%)	0.928
	No	512 (83.1%)	104 (16.9%)	
Family physician	Yes	170 (93.9%)	11 (6.1%)	<0.001*
	No	672 (80.9%)	159 (19.1%)	
Family/friend	Yes	77 (88.5%)	10 (11.5%)	0.166
	No	765 (82.7%)	160 (17.3%)	

* p<0.05 Chi-square test was used in the analysis.

Participants aged 18-64 did not get vaccinated most frequently because they thought they did not have enough information, while those between the ages of 65-74 thought they had taken adequate precautions (50.0%), those between the ages of 75-84 thought they did not have enough information (38.8%), and those aged over 85 years stated that they thought they were old and could not deal with vaccine and its effects (56.1%).

The most common reason why men are not vaccinated is that they think they do not have enough knowledge about the vaccine, while women think that they can not deal with the vaccine and its effects because they are old. The most common reason for not getting vaccinated among the participants who did not have a school education is that they think that they cannot deal with the vaccine and its effects because they are old, while the participants with primary school or higher education think that they do not have enough information about vaccines, and the difference between them is significant. The most common reason why bedridden people do not get vaccinated is the lack of sufficient information, and partially dependent/independent people thought they can not deal with vaccines and their effects due to old age (Table 4)

Table 4. *Distribution of sociodemographic characteristics by the reasons for not getting a COVID-19 vaccine of the participants (N=170)*

Sociodemographic Characteristics		*Reason not to get a COVID-19 vaccine* n(%)				P	Post-hoc
		(A) Not informed enough	**(B) I can't deal with vaccine and its side effect due to my old age**	**(C) I take adequate precautions**	**(D) Other**		
Age	18-64	23(46.0%)	1(2%)	16(32%)	10(20%)	**	
	65-74	6(42.9%)	0(0%)	7(50%)	1(7.1%)		
	75-84	19(38.8%)	13(26.5%)	10(20.4%)	7(14.3%)		
	85+	10(17.5%)	32(56.1%)	10(17.5%)	5(8.8%)		
Gender	Male	23(44.2%)	5(9.6%)	16(30.8%)	8(15.4%)	0.008*	B(<0.001)
	Female	35(29.7%)	41(34.7%)	27(22.9%)	15(12.7%)		
Educational Status	No formal education	21(25.0%)	32(38.1%)	20(23.8%)	11(13.1%)	0.009*	A(0.013) B(<0.001)
	Primary school and above	37(43.0%)	14(16.3%)	23(26.7%)	12(14.0%)		
Functional Status	Totally bedridden	49(36.0%)	32(23.5%)	37(27.2%)	18(13.2%)	0.180	-
	Partially bedridden or Independent	9(26.5%)	14 (41.2%)	6(17.6%)	5(14.7%)		
Having Chronic Disease	Yes	52(33.1%)	43(27.4%)	41(26.1%)	21(13.4%)	**	-
	No	6(46.2%)	3(23.1%)	2(15.4%)	2(15.4%)		

* p<0.05

** The chi-square result is unreliable because more than 20% of the cells have an expected value of less than 5.

The distribution of sociodemographic characteristics according to the type of vaccine received by the participants is as follows: Sinovac vaccine preference is 64.5% in individuals aged 18-64, 89.9% in the age group 65-74, 93.2% in the age group 75-84, 97% in people aged 85 and over. As the age increased, the Sinovac vaccine was preferred more and it was found to be statistically significant. While the preference for the Sinovac vaccine is 94.2% for people who do not have a school education, it is 89% for those with primary school or higher education. As the education level increases, the Biontech vaccine is preferred. While the rate of preference for the Sinovac vaccine was 93.6% in totally bedridden, it was 87.4% in partially dependent/independent individuals. Totally bedridden people are more likely to get the Sinovac vaccine (Table 5).

Table 5. *Distribution of the sociodemographic characteristics of the participants by vaccine type*

Sociodemographic Characteristics		VaccineType N(%)		p
		Sinovac	**Biontech**	
Age	18-64	60 (64.5%)	33 (35.5%)	<0.001*
	65-74	107 (89.9%)	12 (10.1%)	
	75-84	275 (93.2%)	20 (6.8%)	
	85+	325 (97%)	10 (3%)	
Gender	Male	238 (89.5%)	28 (10.5%)	0.262
	Female	529 (91.8%)	47 (8.2%)	
Educational status	No Formal Education	322 (94.2%)	20 (5.8%)	0.010*
	Primary School And Above	445 (89%)	55 (11%)	
Functional status	Totally Bedridden	470 (93.6%)	32 (6.4%)	0.002*
	Partially Bedridden/Independent	297 (87.4%)	43 (12.6%)	
Having chronic disease	Yes	723 (90.9%)	72 (9.1%)	0.532
	No	44 (93.6%)	3 (6.4%)	

* p<0.05Chi-square test was used in the analysis

Dıscussıon

The mean age of study participants was 77.4±16.2 years. Approximately 80% of the participants were aged 75 and over. 68.6% of the participants were women. When similar studies in the literature are examined, it has been determined that most of the people who receive home health and care services are 75 years old and over, and a significant part of the participants are women.[1,7,8] The number of women in our study is about twice that of men. This could be because life expectancy is higher in women and women lead a longer life than men.[9]

Of the participants, 83.2% got the COVID-19 vaccine. This rate was 86.2% in people over 65 years of age. In a study examining COVID-19 vaccine hesitations in Hong Kong, 61.7% of people over the age of 60 were willing to vaccinate[10], in a study investigating COVID-19 vaccine acceptance rates in China, 79% of people aged 60 and over accepted the vaccine[11], and in a study conducted in Thailand that examined the reasons for hesitation about the COVID-19 vaccines of the elderly aged 60 and over, those who agreed to be vaccinated constituted 55.7% of the participants.[12] Compared to other studies, Home Health Care services patients were more likely to agree to be vaccinated than other people aged 65 and over. It is thought that our health policy, which provides HHCS patients and the elderly with the opportunity to be vaccinated at home, contributed to this result. The fact that 66.1% of our patients benefit from the vaccination service at home by the Home Health Care Services or filiation teams supports this idea. It was determined that people with primary school education levels and above were vaccinated at a higher rate than those who did not receive school education. In a study conducted in China, it was found that as the level of education increases, the willingness to get vaccinated against COVID-19 increases.[13] The general attitude of the public towards possible COVID-19 vaccines in Jordan, Kuwait, and other Arab countries was evaluated, and it was observed that the acceptance rate of the COVID-19 vaccine was higher in participants with higher education levels.[14]

Of our patients, 91.1% preferred the Sinovac vaccine, which was first introduced to them, and 96% of those who were vaccinated as soon as it was their turn. It is thought that the most important reason why the Sinovac vaccine is preferred more than the Biontech vaccine, which has difficulties in storage, transportation, and administration, is that it allows it to be administered at home, considering that a significant portion of the patients is bedridden. While the Sinovac vaccine is highly preferred in people aged 65 and over, only 64.5% of the participants between the ages of 18-64 preferred the Sinovac vaccine, and the remaining patients had the Biontech vaccine. Similarly, in a study conducted in China examining Sinovac-Biontech vaccine preferences, the rate of those who stated that they expected a better vaccine (Biontech) was higher in 18-59-year-olds than in those aged 60 and over.[15] In our study, it was also observed that the Biontech vaccine was preferred at a higher rate by people who had primary school or higher education compared to those who did not. It is thought that this situation is due to people between the ages of 18-64 having more educational opportunities than the elderly participants and, accordingly, the number of people who receive an education is higher than other age groups.

Of the patients, 63% were totally bedridden and 33.8% were partially bedridden. While 78.7% of bedridden people were vaccinated against COVID-19, 90.9% of partially bedridden/independent people were vaccinated. In our study, being totally bedridden was found to be a factor that reduced the vaccination rate. Totally bedridden people were not vaccinated because they did not have enough information about the vaccine and they thought that they took adequate precautions against the transmission of the COVID-19 infection. The limitation of being bedridden created difficulty in accessing sufficient information. The reason for the low rate of vaccination in bedridden people is that they think that they take adequate precautions due to the inability to join a society and the compulsory social isolation situation.

Of the participants, 89.4% were informed about COVID-19 vaccines through television; 39.1% through other media, and 17.9% from their family doctor. Vaccination rates were significantly higher in people who received information about COVID-19 vaccines from their family doctor than those who didn't. In a study conducted on Norwegian adults, vaccine hesitancy decreased as confidence in the information received from health officials about the vaccine increased.[16] In a study examining the factors affecting COVID-19 vaccine acceptance, it was seen that neighbors, family members, and friends were the first sources of information, and 33.9% of the people received information from health professionals.[17] In a study based in Italy, search engines and doctors/health professionals are the most preferred information sources about vaccines.[18] Television and media may be at the forefront among the sources of information about vaccines due to the ease of access to information. Since most of the participants are bedridden, the source of information can mostly be television. Although the number of those who received information from the family physician was less than the other options, their rate of vaccination is higher. This result indicates that family physicians who provide preventive health services seem to be effective and important in the attitudes and behaviors of patients in this regard. For this reason, Home Health Care Services physicians and family physicians have more duties to raise awareness of vaccination among Home Health Care patients.

Of the participants, 16.8% refused to get the COVID-19 vaccine. The most common reason for rejection is that they don't have enough information about the vaccine. People aged 85 and over have not been vaccinated because they think that they can't deal with the vaccine's side effects, and they are old. Studies in the literature have shown that the most common reason for hesitation about COVID-19 vaccines among the adult and elderly population is to be concerned about the effectiveness of the vaccine and its possible side effects.[12,19,20,21,22] The fact that vaccines are new, there are some uncertainties due to the lack of long-term studies, and the lack of sufficient information about them stand out as the main reasons for vaccine refusal.

Conclusıon

The rate of getting the COVID-19 vaccine is high among Home Health Care Services patients. Especially in participants aged 65 and over, the rate of vaccination was found to be significantly higher than in other age groups. The reasons why Sinovac is used at a high rate in patients receiving Home Health Care Services, where bedridden patients are in the majority, is that it can be applied at home thanks to the ease of storage, transportation, and application, and the service of vaccination at home with the teams established by the Ministry of Health.

Lımıtatıons

Since our study was conducted with the patient group registered to the Home Health Care Services unit, approximately 10% of the participants have a disease that caused difficulty in communicating like dementia and cerebrovascular disease. Information was obtained from primary caregivers of the patients who could not communicate due to their diseases. The applications and service processes of the patients registered in the Home Health Care Service are generally made by the relatives of the patients. Due to the nature of HHCS, decisions regarding the treatment and follow-up of patients are made together with the patient's relatives.

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Conflicts of Interest

The authors declare that they have no competing interests.

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The Opinions of Married Women Living in the Metropolitan Area of Turkey on the Family Planning Method they Use: A Qualitative Research

Türkiye'de Büyükşehirde Yaşayan Evli Kadınların Uyguladıkları Aile Planlaması Yöntemine İlişkin Görüşleri: Nitel Bir Araştırma

Aysu YILDIZ KARAAHMET[1], Fatma Şule BİLGİÇ[1]

Abstract

Objective: This research was conducted to examine the views of women on four different types of family planning they use.

Materials and Methods: The period of time for this qualitative study was January through February 2023. 33 Istanbul-based women made up the study's sample. In order to create the greatest possible diversity, the study's participants' women were divided into groups according to their use of intrauterine devices (IUDs), combination oral contraceptives (COC), condoms, and withdrawal methods.

Results: Based on information from 33 interviews with Turkish women, this qualitative research. Four different family planning strategies, the decision-making process, attitudes regarding the impact of family planning on sexual life, and four major themes were identified in the article. It has been observed that women are influenced by the environment and health personnel in family planning method choices and decision-making processes, they benefit from the internet, and their spouses are competent in the decision-making process.

Conclusion: In this study, it was found that gender norms gave men the authority to decide on reproduction; this means that their partner usually has the final say on the number of children a woman has or planning a pregnancy. The fact that women do not have their own preferences is beneficial in terms of documenting these preferences and concerns of health personnel, as well as integrating them into the design, implementation and evaluation of the intervention, taking into account their caution towards interventions.

Keywords: Family planning, condom, combined oral contraception, intrauterine device

Özet

Amaç: Bu araştırma, kadınların kullandıkları dört farklı aile planlamasına yönelik görüşlerini incelemek amacıyla yapılmıştır.

Gereç ve Yöntem: Nitel tipte yapılan bu araştırma Ocak-Şubat 2023 tarihleri arasında gerçekleştirildi. Araştırmanın örneklemini İstanbul'da yaşayan 33 kadın oluşturdu. Araştırmaya katılan kadınlar rahim içi araç (RİA), kombine oral kontraseptif (KOK), kondom ve geri çekme yöntemlerine göre kategorize edildi ve maksimum çeşitlilik örnekleme tekniğiyle sağlandı.

Bulgular: Bu nitel çalışma, Türkiye'de yaşayan kadınlarla yapılan 33 görüşmeden elde edilen verilere dayanmaktadır. Makalede dört farklı aile planlaması yöntemi, karar verme süreci, aile planlamasının cinsel yaşama etkisi ile ilgili inançlar ve 4 ana tema belirlenmiştir. Kadınların aile planlaması yöntem seçimlerinde ve karar verme sürecinde çevre ve sağlık personelinden etkilendikleri, internetten yararlandıkları ve karar verme sürecinde eşlerinin yetkin oldukları görülmüştür.

Sonuç: Bu çalışmada cinsiyet normlarının erkeklere üreme konusunda karar verme yetkisi verdiği; bu, bir kadının sahip olduğu çocuk sayısı veya hamileliği planlaması konusunda son sözü genellikle eşlerinin söylediği anlamına gelir. Kadınların kendi tercihlerinin olmaması, sağlık personelinin bu tercih ve kaygılarının belgelenmesinin yanı sıra, müdahalelere karşı temkinli olmalarını dikkate alarak, müdahalenin tasarımı, uygulanması ve değerlendirilmesine entegre edilmesi açısından faydalıdır.

Anahtar Kelimeler: Aile planlaması, kondom, kombine oral kontraseptif, rahim içi araç.

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Introduction

Family planning (FP) programs should adopt the principle of informed choice as well as guidance with the goal of providing individuals with a wide choice of birth control methods. Giving everyone equal choice is a fundamental right and it is necessary to meet the individuals diverse needs. However, a number of barriers, including both supply and demand factors, limit an individual's reach and actual choice. This is because there are 214 million women in developing countries who need unmet modern birth control methods.[1,2] In these countries, the high number of births ranks first among the causes of maternal death. Therefore, the effective provision of FP services makes significant contributions to the protection and development of women's and children's health as well as the health of society by preventing excessive fertility, which adversely affects maternal and infant health.[3,4]

FP services were legalized in Turkey in 1965 and it is aimed to spread their use day by day until today. Current data still report that the use of low-reliability traditional methods is quite common.[5,6,7] Family planning and sexual health concerns are still taboo subjects to discuss in Turkey according to studies on access, method choice, and attitudes. [8,9,10] Individuals' knowledge about FP methods, their beliefs, and their accessibility to FP methods significantly affect their decisions and choices whether to use methods or not.[8] Although the use of modern methods is not common among women who use of family planning methods, it will be a guide for the development of reproductive health to identify the confounding factors related to the whole process in women who use any method.[9,10] Presenting a perspective on the cause of the problem is to prevent excessive fertility that adversely affects maternal and infant health. There are very few studies on women's access to FP methods, their use problems or their disuse. This study was conducted in qualitative type in order to examine the views of women on family planning method used.

Method

Study Desing

This study was conducted in a qualitative type in order to examine women's views on the family planning method they use. COREQ notification was used in the design and notification of the study.[11]

Population and Sample Size of the Study

In the study, a maximum diversity sampling method was used from purposeful sampling methods to determine the individuals to be sampled.[9] Purposeful sampling is a sample selection method that makes it possible to obtain rich content information appropriate to the purpose of the study, which is especially preferred in qualitative research.[12,13] In qualitative research, the sample can be an individual, a group, a culture, an event, or a specific phenomenon experienced by the individual. The sample is determined in line with the research question and purpose. Sample size varies according to the qualitative research approach, the variety of the selected sample, and the participant's ability to provide sufficient information. On the other hand, due to the nature of qualitative research, as in the case study, an individual alone can constitute a research sample.[14,15,16]

In this context, the intrauterine device was categorized into four groups: combined oral contraceptives, condoms, and women using the withdrawal method. 33 women were interviewed, including women with OCS 7, intrauterine device (IUD) 8, withdrawal 10, and condom 8. The sampling inclusion process was stopped after being repeated and interviewed by two more different women. The study included women who were active in sex life for eleven years, who had been using current family planning management regularly for the past year, and who volunteered to participate in the study. Women who had a barrier to speech and comprehension had sexual health problems and were pregnant or planning pregnancy during the research were not included.

Data Collection Tools

The semi-structured questionnaire prepared by the researcher by scanning the literature consisted of questions including age, education and marital status, occupation, and duration of using family planning methods.[17,18] The form consisting of six questions was arranged to provide detailed data on the subject and to guide the researcher during the interview.

Data Collection Method

Data were collected from women who applied to a private hospital in Istanbul and volunteered to participate in the study. The data were collected by individual in-depth interview method using a semi-structured interview form. In semi-structured interviews, participants and researchers may deviate from the list of topics and ask questions as needed. The one-on-one interviews took place on the internet platform at times that were convenient for each participant. The relaxed and conversational interview format, which gave each participant a chance to speak and included flexibility to make it easier for the participants to convey their feelings, views, and experiences, attracted attention. Before the interview, each participant was made aware that audio and video recording will take place and their voluntary agreement was sought. At the volunteer's request, the interviews were audio and video recorded. Using a computer software, the interviews were recorded verbatim and evaluated. Each interview lasted between 60 and 90 minutes total.

Evaluation of Data

The descriptive data obtained from the questionnaire forms were reported numerically. In analyzing the data, the participants' voice recordings were converted into a text word by word. The data obtained from the interview were analyzed through content analysis. Content analysis requires an in-depth analysis of the collected data and allows for the uncovering of previously unclear themes and dimensions. The basic process of content analysis is to bring together similar data within the framework of certain concepts and themes and to interpret them by arranging them in a format that the reader can understand. After the one-on-one interviews were over, the audio recordings were listened to repeatedly by the researchers and transferred to the computer environment as the participants said. The written statements were read again and again, and the same, similar, and different expressions were grouped. The grouped expressions were re-evaluated within and the most repeated expressions and the main themes and sub-themes of the research were determined. Integrity was ensured by checking the relationship of the sub-themes that make up the themes among themselves and the relationship of each theme with the others. No statistical program was used in the analysis of qualitative data. In the coding, analysis, and preparation of the research report of the data, support was received from a faculty member who is competent in the field of qualitative research. For reliability, the encoders (2 people) were evaluated independently of each other and 80% similarity was obtained. Each participant's own abstract was read and eligibility was obtained. To ensure the internal reliability (consistency) of the research, all of the findings were given directly without comment. In the interview data, findings, and discussion section; it was indicated exactly as it was in quotation marks and in italic font.

Ethical Approval

Permission was obtained from Non-Interventional Clinical Research Ethics Committee before the research (Ethics Committee Date: 25.01.2023 No: 7). At the beginning of each interview, participants were informed about the study. The consent, which stated that the participation was voluntary, and that all data would be stored securely and kept confidential, was obtained from each participant before the interview. It was ensured that the records obtained were kept by paying attention to the articles of the law on the protection of personal data.

Results

The mean age of the women included in the study was 31±6.40 years. Of the women, 39.4% (n=13) reported that they were university graduates, 75.8% (n=25) reported that their income was equal to their expenses, and 24.2% (n=8) had no children. Participants reported using existing FP methods for 3.42±1.47 years.

The data obtained from the interview were collected under 4 main themes.

- Decision-making process
- Effect on sexual life
- Disadvantages of the method
- Opinions about the method

Decision-Making Process

The issue of how the process of deciding and starting the family planning method used by women within the framework of the first theme and the factors affecting it was examined. It was seen that women were most affected by the environment and health personnel, benefited from the internet or their husbands decided to choose the method (Table 1).

Table 1: ***Selection/Decision Making Process*** *of* ***Family Planning Method Used by Women (n=33)***

	Method	Codes
Family Planning Method Selection/Decision Making Process		
	Retraction (n=10)	Spouse's desire (n=5), Shame (n=3), Hearing from the environment (n=2), Increasing pleasure (n=2) , Simple (n=2)
	Condoms (n=8)	Clean (n=4), Hearing from the environment (n=4), Self-will (n=3)
	COC**(n=7)	Medical personnel (n=3), Internet (n=4)
	IUD (n=8)	Absolute Protection (n=4), Health Problems (n=3), Reliable (n=4), Medical personnel (n=2), Comfortable (n=2)

* Intrauterine device, ** Combine oral contraceptive

Below are examples of expressions related to the process of deciding and starting the family planning method used by women.

Retraction 1: "... *My husband decided to herself that she said so she chose. ",*
Retraction 2: "*... We didn't decide to choose any method that would be the simplest, easiest and most comfortable, and that's what I heard from around...", "... What can I do if my husband wants to? ... "*
Retraction 4: *"... because my husband was uncomfortable with the condom, and because it made me itch. My husband told me that there was a risk of getting pregnant that I also investigated it. The people at the health clinic wanted to give counseling, but I didn't want to, I was ashamed...", "... My husband* is *a bit backward..."*
Retraction 7: *"... I explained the situation to the nurse lady at the family health center and she told me about the withdrawal method."*
Retraction 9: *"... When I first got married, I was so embarrassed...", "... For the first 2 months of our marriage, my husband used the withdrawal method..."*
Condom 1*:* "*...* I *didn't get a consultation, and I didn't know I was given a counseling for it...", "... I've always gotten ideas from the people around me who use it..."*
Condom 2: *"... I heard that it was a condom that protected pregnancy in the most precise way, so we used it..."*
Condom 3: *"... They suggested condoms, my husband was not very interested in using condoms, he asked about other methods, we decided to use condoms because he was against me using pills..."*
Condom 4: *"When we first got married, I told my husband that I found the condom more hygienic..."*
COC 4: *".... The midwife at the health clinic told me the methods, told me to come to regular check-ups if I had a spiral fitted, and I didn't want to be examined from below all the time..."*
COC 5: *"... That legendary pool of information called YouTube..."*
COC 6: *"... In fact, the biggest factor in my preference for this method is that I can use the secret from Murat whenever I want and I can leave it whenever I want, so in fact, the ropes are in my hands..."*
IUD 1: *"... I had health problems. I think IUD is the right protection to provide..."*
IUD 3: *"... we chose this method because it is such a guaranteed method than other methods."*
IUD 4: *"... The doctor said what do you intend to use as a method of contraception, come to the hospital after you are forty and look at our family planning without an appointment...", "... I went to family planning and they immediately welcomed me and asked if I had a method in mind...", "...* the *spiral came the most logical because it doesn't bother..."*

The Effect on Sexual Life

The effect of the family planning method used by women within the framework of the second theme on sexual life was examined. While the majority of women who used the withdrawal and IUD method had a positive effect on their sexual life, it was found that those who used condoms had a negative effect and COC did not affect it (Table 2).

Table 2. *The Effect of the Family Planning Method Used by Women on Sexual Life (n=33)*

	Method	Codes
The Effect of Family Planning Method on Sexual Life	Retraction (n=10)	It had no effect (n=3), increased pleasure (n=5), increased pleasure (n=3)
	Condoms (n=8)	No effect (n=2), Reduced pleasure (n=6), Presence of plastic (n=4)
	COC **(n=7)	There was no effect (n=7),
	IUD (n=8)	No effect (n=2), Positive effect (n=4)

* Intrauterine device, ** Combine oral contraceptive

Below are examples of expressions related to the effect of the family planning method used by women on sexual life.

Retraction 1: *"... it didn't make an impact..."*

Retraction 4: *"... He (his husband) gets more pleasure..."*

Retraction 5: *"... We can enjoy it more..."*

Condom 1: *"... It doesn't affect my sex life very much..."*

Condom 3: *"... We get less fulfillment..."*

Condom 7:*"... I feel like something plastic is out there...", "... we can't enjoy it..."*

Condom 8:*"... my husband said it was like you didn't feel anything, so I mean, you don't feel anything like a plastic thing throwing a stone into a well..."*

COC 3: *"... I don't think it affects much..."*

COC 4: *"... He didn't do anything to me because of reluctance..."*

IUD 1: *"... positively impacted our sex life..."*

IUD 3: *"... nothing changed, and I felt safer..."*

IUD 8: *"... negatively affected my sex life..."*

Disadvantages of the Method

The disadvantages of the family planning method used by women within the framework of the third theme were examined. Those who used the withdrawal method from women saw the fear of pregnancy, those who used condoms as expensive, interrupting intercourse and reducing sexual pleasure, those who used COC saw the fear of forgetting the drug, and those who took the medication every day and those who used IUDs saw the increase in bleeding as a disadvantage (Table 3).

Table 3. *Perceived Disadvantages of the Family Planning Method Used by Women (n=33)*

	Method	Codes
Perceived Disadvantages of the Family Planning Method	Retraction (n=10)	Fear of getting pregnant (n= 8), Not seeing it negatively (n =2)
	Condoms (n=8)	Costly (n=5), Negative impact on sexual life (n=5)
	COC **(n=7)	Taking medication every day (n=7), fear of forgetting the medicine (n=4), Cost (n=4), Weight gain (n=3), Reducing the amount of bleeding (n=2)
	IUD (n=8)	Increasing the amount of bleeding (n=7), Going to controls (n=1)

* Intrauterine device, ** Combine oral contraceptive

Below are examples of statements about the disadvantages they perceive regarding the family planning method used by women.

Retraction 1*: "... If my period is delayed by a day, I wonder if I am pregnant..."*

Retraction 4:*"... I didn't encounter any negativity..."*

Retraction 5: *"... What I'm most afraid of in this is that if he can't keep himself. Fear is that. What if it can't hold? ... "*

Retraction 6: *"...* my *partner's interruption of the relationship, causing me to lose my sexual satiety, my lack of certainty of being able to conceive under my partner's will and control..."*

Retraction 8: *"... I wish I could trust my husband and keep it that way, but I don't trust her..."*

Condom 1: *"... the burning sensation increases, and even itching and irritation..."*

Condom 2: *"...* it *breaks up the relationship, which means it causes premature ejaculation..."*

Condom 3: *"... Economically costly...", "... It has negatively affected our sex life...", "... Before we used to use condoms, we had sexual intercourse more often..."*

Condom 4: *"... What if it's a bit pricey..."*

COC 1: *"... To be on medication every day..."*

COC 2: *Caused a lot of weight gain...", "... I began to experience spiritual changes...", "...* because you have to drink *every day, you drink according to your hour, for example, you should not forget, if you forget, it will be a problem..."*

COC 4: *"... there was a decrease in the amount of bleeding...", "... I had nausea, weakness and nervousness...", "it wasn't cheap..."*

IUD 1: *"... It prolongs the bleeding..."*

IUD 2: *"... I have a lot of currents..."*

IUD 3: *"... I bleed a lot of things..."*

Opinions about the method

Within the framework of the fourth theme, women's views on family planning, customs and religious beliefs were examined. The vast majority of women stated that they did not hear, care or other methods were not permissible to use family planning in accordance with their religious beliefs, customs, and traditions (Table 4).

Table 4. *Women's Beliefs About the Use of Family Planning (n=33)*

	Method	Codes
Beliefs about the Use of Family Planning	Retraction (n=10)	Not a sin (n=6), I don't know (n=3), Another method is ghouh (n=1)
	Condoms (n=8)	Not a sin (n=4), I don't know (n=3), Another method is ghouh (n=2)
	COC **(n=7)	It concerns me (n=2), not a sin (n=2),
	IUD (n=8)	Not permissible (n=2), Not a sin (n=3), Does it concern me (n=3)

* Intrauterine device, ** Combine oral contraceptive

Below are examples of expressions related to women's beliefs such as customs, customs, religious beliefs, and genders related to family planning.

Retraction 1: *"... I think the woman should use the method; the man should not be given this right..."... I think it is not a sin, because it makes the most sense to be protected rather than to multiply without fuss, and it is also very suitable for our religion..."*

Retraction 2: *"... Even if it is contrary, I think it is better than having an unwanted pregnancy..."*

Retraction 3: *"... Do you know what's wrong with religion, having a woman tie her tubes..."*

Condom 2: *"... Why shouldn't it be in accordance with our customs and traditions, I think the reason for the children who wander outside is because of the families who think* that it is *customary..."*

Condom 4: *"... I don't think it's right to have a tube connected* or something..."

COC 4: *"... I don't think it's against our religious beliefs or our customs..."*

IUD 3: *"... They say it is not permissible from a religious point of view. I don't care..."*

IUD 4: *"... Religious beliefs don't interest me very much..."*

Discussion

This qualitative study is based on data from 33 interviews with women living in Turkey. In the article, beliefs about four different family planning methods, the decision-making process, the effect of family planning on sexual life, and 4 main themes were determined. It was seen that women were influenced by the environment and health personnel in the family planning method choices and decision-making process, that they benefited from the internet, and that their husbands were competent in the decision-making process. In this study, it is stated that gender norms give men the authority to make decisions about reproduction; this means that their partner usually has the final say on the number of children a woman has or planning the pregnancy. It was reported that the sex lives of women who used withdrawal, which is one of the traditional methods, were positively affected. Women reported certain disadvantages in the 4 methods they used. In the study, the women's religious beliefs did not significantly influence their family planning decisions.

The challenges of increasing the use of modern contraception in Turkey and addressing the unmet need are well documented in health statistics and examined from various angles in the literature.[18,20,21] According to the Turkish Demographic Health Survey (TNSA) 2018 data, 48.9% of married women are currently using a modern birth control method. Modern contraceptive use shows that according to 2013 data, it increased by only 3% in 2018.[14] She reported that the women who participated in the research decided to use the method due to environmental factors, health personnel, and their spouses. In particular, while health personnel are effective in deciding the use of modern methods such as IUD and *COC*, spouses determine the use of traditional applications. In the study, women "*... My husband decided to herself that she said so, she chose..." were* seen. In a study, it was found that a high percentage (30.5%) of women used the withdrawal method due to the request of their husbands.[22] In other studies, the rate of using the withdrawal method due to spouse preference varies between 28-62%.[23,24] In the research examined, spousal preference has the highest rate in using the withdrawal method. The findings are consistent with our research. This shows that spouses have an effect on women's decision-making levels in the use of family planning methods. In addition, revealing the reasons why women prefer the FP methods they use plays a guiding role in the planning of FP services for health professionals. In this context, it is thought that planning consultancy

and training for the benefits of using safe and effective FP methods will be important in preventing the preference for FP methods with limited effect.

In Turkish society, sexuality and FP issues are seen as taboo due to the fact that they cannot be easily discussed and are among the difficult topics to talk about. It is necessary to provide FP counseling by health professionals so that women can talk about their sexual lives and decide on FP methods together with their partners, and the effects of FP methods on sexual life should be taken into consideration during the decision-making process.[24] In this context, it is extremely important to reveal the effect of FP methods on sexual functions and quality of sexual life. When the effect of the family planning method used by women within the framework of the second theme on sexual life was examined in the study findings, it was seen that the majority of women who used withdrawal and IUD methods had a positive effect on their sexual life, while those who used condoms had a negative effect because they reduced pleasure, and COC did not affect it. In the women's statements, especially those who use condoms *"... I feel like something plastic is out there...", "... we can't enjoy* it..." In a study, it was found that sexual function and quality of sexual life were moderate in women using the FP method.[24,25] In other study findings, it was found that women who used the FP method had moderate sexual quality of life.[20,25]

According to the Turkish Demographic Health Surveys (TNSA) 2018, the most frequently used FP methods by married women include withdrawal. This method is followed by condoms, IUDs, and tubal ligation, respectively. Similarly, in the studies carried out in our country, condoms, IUDs and tubal ligations are among the most common modern FP methods used by women, and withdrawal is the first among traditional FP methods.[23,24] Among modern methods, the first place of the condom as the FP method used is thought to be due to its easy accessibility, ease of use, and protective feature against sexually transmitted diseases and cancer. In addition, this finding can be evaluated positively in terms of showing that women share the responsibility with their spouses in the choice of the FP method. The women included in the study were included as women who used condoms, OCS, IUDs, and withdrawals, which are among the most commonly used family planning methods. In the studies, it was determined that women chose the FP methods they used mostly because they were safe, easy to use, and the spouse's preference, while in this research, they were preferred for similar reasons; When the disadvantages of the methods were questioned, women who used the withdrawal method saw the fear of getting pregnant, those who used condoms were expensive, interrupting the relationship and reducing sexual pleasure, those who used COC were afraid of forgetting the drug and the thought of taking medication every day and those who used IUDs saw the increase in bleeding as a disadvantage.

The cultural values, attitudes, beliefs, and behaviors of the society affect the lifestyles and health conditions of the people. Fertility and family planning are associated with method use, religious beliefs, individual and community education level. Especially in Muslim countries, religious beliefs are the most important factor that constitutes an obstacle to the use of family planning methods on the basis of having many children.[25,26] In our country, it is observed that social structure, traditions, and religious beliefs have an impact on individual and community life.[27] Within the framework of the fourth theme, women's beliefs such as customs, customs, religious beliefs, and gender-related to family planning were examined. The overwhelming majority of women claimed that some of the portions about using family planning in accordance with your religious beliefs, customs, and traditions are not something they hear, care about, or otherwise embrace. Looking at the expressions of women, *"... They say it is not permissible from a religious point of view. I don't care...*" statements. *In a study, 29.8% of women stated that they do not use family planning methods because it is a sin.*[20] In one study, they stated that women with unmet FP needs were in a fatalistic approach. Their fatalistic approach has been very effective in not being protected from pregnancy at all, not being protected from pregnancy with an effective method, and not using their chosen methods of contraception regularly. In general, they have displayed an attitude about having children as 'If Allah will give it, it will be so and so will happen'. Women who believe that it is permissible to prevent pregnancy from a religious point of view and that it is a sin to miscarry willingly should be supported that it is religiously more appropriate to protect them with an effective method so that they do not experience an unwanted pregnancy and do not have to terminate this pregnancy with a voluntary miscarriage.

Conclusion

For family planning research and interventions to be successful in ensuring equitable and rights-based access to the FP, they must adopt a community- and women-centered approach by collaboratively exploring the norms, religion, and lifestyle factors surrounding the FP. In the findings of the research, it was reported that the spouses were effective in making decisions, that their sexuality was not affected, that they were not affected religiously, and that they saw some disadvantages in its use. Fertility preferences play an important role in explaining low FP intake. However, while gender norms limit women's choice of reproduction, they also cause conflicting norms about fertility planning. More research is needed that explores the role of religion and destiny in determining family planning decisions; How these issues might prevent people from making their own decisions on FP and

children interval should be specifically questioned. The study serves as a starting point for efforts intended to raise awareness of the FP's alleged advantages for women's health and to improve access to them. Considering that women do not have their own preferences, it is important to make sure that health professionals are aware of their preferences and concerns and that they are taken into account during the design, implementation, and evaluation of the intervention. Midwives and nurses need to provide appropriate counseling and raise awareness, especially to women who apply to family health centers.

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Evaluation of the Effect of Healthy Lifestyle Behaviors on Gynecological Cancer Awareness in Postmenopausal Women

Postmenopozal Dönemdeki Kadınlarda Sağlıklı Yaşam Biçimi Davranışlarının Jinekolojik Kanser Farkındalığına Etkisinin Değerlendirilmesi

Serap Tekbaş[1]

Abstract

Introduction: In this study, it was aimed to evaluate the effect of healthy lifestyle behaviors on gynecological cancer awareness in postmenopausal women.

Method: Data were collected from 452 women constituting the sample group of our cross-sectional study through the individual identification form, the Gynecological Cancers Awareness Scale, and the Healthy Lifestyle Behaviors Scale II.

Results: The total median value of the healthy lifestyle behaviors scale of the postmenopausal women constituting the sample group was 119, and the total median value of the gynecological cancer awareness scale was 136. Gynecological cancer awareness scale median values of women with social security, women in the 45-50 age group, and women who stated that gynecological cancers are preventable were found to be statistically significantly higher. A moderate, positive correlation was found between the total scores of the healthy lifestyle behaviors scale and the gynecological cancer awareness scale.

Conclusion: It was determined that the level of awareness of gynecological cancer increased as the level of healthy lifestyle behaviors increased.

Keywords: Postmenopause, gynecological cancer, healthy lifestyle, awareness

Özet

Giriş: Bu çalışmada postmenopozal dönemdeki kadınlarda sağlıklı yaşam biçimi davranışlarının jinekolojik kanser farkındalığına etkisinin değerlendirilmesi amaçlanmıştır.

Yöntem: Kesitsel tipteki çalışmamızın örneklem grubunu oluşturan 452 kadından veriler birey tanıtım formu, Jinekolojik Kanserler Farkındalık Ölçeği ve Sağlıklı Yaşam Biçimi Davranışları Ölçeği II aracılığıyla toplanmıştır.

Bulgular: Örneklem grubunu oluşturan postmenopozal dönemdeki kadınların sağlıklı yaşam biçimi davranışları ölçeği toplam puan ortanca değeri 119, jinekolojik kanser farkındalık ölçeği toplam puan ortanca değeri ise 136 olarak bulunmuştur. Sosyal güvencesi olan kadınların, 45-50 yaş grubundaki kadınların, kadın hastalıkları kanserlerinin önlenebilir olduğunu ifade eden kadınların jinekolojik kanser farkındalık ölçek puan ortanca değerleri istatistiksel olarak anlamlı derecede yüksek bulunmuştur. Sağlıklı yaşam biçimi davranışları ölçeği ve jinekolojik kanser farkındalık ölçeği toplam puanları arasında orta düzeyde, pozitif yönde korelasyon bulunmuştur.

Sonuç: Sağlıklı yaşam biçimi davranışları düzeyi arttıkça jinekolojik kanser farkındalık düzeyinin de arttığı saptanmıştır.

Anahtar Kelimeler: Postmenopoz, jinekolojik kanser, sağlıklı yaşam biçimi, farkındalık

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Giriş

Sağlıklı yaşam biçimi davranışlarının benimsenmesi yaşam kalitesinin artmasını ve yaşamın uzamasını sağlamaktadır. Sağlıklı yaşam biçimi davranışlarının önemsenmemesi ve hayata entegre edilmemesi, bireylerde yaşamı tehdit eden birçok sağlık problemine neden olduğu gibi, jinekolojik kanser oluşumuna da büyük ölçüde yol açmaktadır.[1] Özellikle ilerleyen yaş ve hormonal değişimler nedeniyle sağlık sorunlarının arttığı postmenopozal dönemde kadınların sağlıklı beslenme alışkanlığını benimsemesi ve sürdürmesi, başarılı stres yönetimi, düzenli egzersiz ve sağlıksız alışkanlıklardan uzak durması jinekolojik kanserlerin önlenmesini sağlayacaktır.[2,3]

Jinekolojik kanserler kadınlarda önemli morbidite ve mortalite nedenidir. Dünya genelinde her yıl yaklaşık 570.000 yeni serviks kanseri vakası görülmekte ve bu vakaların %.6,9'u ölümle sonuçlanmaktadır.[4] Küresel kanser istatistikleri 2018 verilerine göre Dünya'da endometrium kanseri insidansı %8,4 iken, over kanseri insidansı %6,6'dır. Türkiye'de ise her 100.000 kadından 14,1'inde serviks, 7,5'inde endometrium, 6,9'inde over kanseri görülmektedir.[5]

Mortalite ve morbidite nedeni olan ve toplum sağlığını olumsuz etkileyen jinekolojik kanserlerin erken tanısı önemlidir.[6,7] Jinekolojik kanserlerden korunma ve jinekolojik kanserlerin erken tanısında farkındalık büyük önem taşımaktadır. Jinekolojik kanser farkındalık düzeyinin artırılması, kadınların risk faktörleri, belirtiler ve tarama programları konularında bilgilendirilmeleri ile mümkündür. Kadınların farkındalığının artması ise hastalık oranını azaltacağı gibi, erken tanıyı sağlayarak mortalite oranının artmasını engelleyecektir.[8,9,10] Birçok çalışmada kadınların jinekolojik kanser farkındalık düzeyi düşük bulunmuştur.[11,12,13] Farklı çalışmalarda jinekolojik kanser semptomları ve risk faktörleri hakkında yapılan eğitimin kadınların jinekolojik kanser farkındalık ve bilgi düzeyini artırdığı sonucuna ulaşılmıştır.[2,14,15]

Bu çalışmada postmenopozal dönemdeki kadınların jinekolojik kanserler konusunda farkındalık düzeyinin belirlenmesi ve sağlıklı yaşam biçimi davranışlarının değerlendirilmesi, sağlıklı yaşam biçimi davranışlarının jinekolojik kanser farkındalığına etkisinin belirlenmesi amaçlanmıştır.

Araştırma Soruları

1) Postmenopozal dönemdeki kadınların jinekolojik kanser farkındalık düzeyi nedir?
2) Postmenopozal dönemdeki kadınların jinekolojik kanser farkındalığını hangi faktörler etkilemektedir?
3) Postmenopozal dönemdeki kadınlarda sağlıklı yaşam biçimi davranışları ne düzeydedir?
4) Postmenopozal dönemdeki kadınlarda jinekolojik kanser farkındalığı ile sağlıklı yaşam biçimi davranışları arasında anlamlı bir ilişki var mıdır?

Gereç ve Yöntem

Araştırmanın Türü: Araştırma kesitsel türde yapılmıştır.

Örneklem Seçimi

Örneklem seçiminde evreni bilinmeyen örnekleme yöntemi kullanılmış, %95 güven düzeyi ve %5 örnekleme hatası ile örnekleme dahil edilmesi gereken minimum sayı 384 olarak belirlenmiştir. Postmenopozal dönemde olan, jinekolojik kanser tanısı almamış, araştırmaya katılmaya gönüllü olan kadınlar çalışmaya davet edilmiştir. Davet edilen kadınlardan 452 kişi çalışmaya katılmak için gönüllü olmuş ve örneklem grubumuzu oluşturmuştur.

Veri Toplama Süreci

Çalışmaya, katılmaya gönüllü olan 452 postmenopozal dönemdeki kadın dahil edilmiştir. Soru formu çevrimiçi ulaşılabilecek biçimde hazırlanmış ve soru formunu içeren link oluşturulmuştur. Soru formunu içeren link farklı sosyal medya platformlarında paylaşılarak postmenopozal dönemdeki kadınlar çalışmaya davet edilmiştir. Katılımcılardan çalışmaya katılım için onam alınmıştır. Veriler 1 Haziran 2022-1 Eylül 2022 tarihleri arasında çevrimiçi form aracılığıyla toplanmıştır.

Veri Toplama Araçları

Araştırmada veriler, birey tanıtım formu, Jinekolojik Kanserler Farkındalık Ölçeği ve Sağlıklı Yaşam Biçimi Davranışları Ölçeği II aracılığıyla toplanmıştır.

Birey Tanıtım Formu: Araştırmacı tarafından literatür taranarak oluşturulan 22 sorudan oluşan form, katılımcıların sosyodemografik özelliklerini, obstetrik ve jinekolojik özelliklerini belirlemek amacıyla oluşturulmuştur.

Jinekolojik Kanserler Farkındalık Ölçeği (JİKFÖ): Kadınların, jinekolojik kanserlerle ilgili farkındalığını değerlendirmek amacıyla, Dal ve Ertem tarafından, 2017 yılında, 20-65 yaş arası kadınlar için geliştirilmiştir.[16] JİKFÖ, 41 madde olup, "Jinekolojik Kanser Riskleri Farkındalığı'', "Jinekolojik Kanserlerde Erken Tanı ve Bilgi Farkındalığı'', "Jinekolojik Kanserlerden Korunma Farkındalığı'', "Jinekolojik Kanserlerde Rutin Kontrol ve Ciddi Hastalık Algısı Farkındalığı'' olmak üzere, dört alt boyuttan oluşmaktadır. JİKFÖ toplam puanından alınabilecek en düşük puan 41 ve en yüksek puan 205'tir. Ölçekten alınan puan arttıkça farkındalık düzeyi artmaktadır.

Sağlıklı Yaşam Biçimi Davranışları Ölçeği II (SYBDÖ): Walker ve ark. (1996) tarafından geliştirilen Sağlıklı Yaşam Biçimi Davranışları Ölçeği- II" nin Türkçeye uyarlanmasına yönelik geçerlik ve güvenirlik çalışması Bahar

ve ark tarafından 2008 yılında gerçekleştirilmiştir.[17] Ölçekten alınabilecek en düşük puan 52, en yüksek puan ise 208'dir. 52 maddeden oluşan Sağlıklı Yaşam Biçimi Davranışları Ölçeği II"nin Cronbach Alpha katsayısı 0,92 olup yüksek güvenirlik derecesine sahiptir. Bu çalışmada Ölçeğin Cronbach Alpha katsayısı ise 0,94'tür.

Verilerin İstatistiksel Analizi

Araştırmada istatistiksel analizler SPSS paket programı 26.0 kullanılarak yapılmış, tanımlayıcı özellikler sayı, yüzde ve ortalama olarak verilmiştir. Bağımsız gruplar arasındaki ölçek puanlarının karşılaştırılmasında veri normal dağılmadığı için iki grup arasındaki fark Mann Whitney U testi, ikiden fazla grup arasındaki karşılaştırmalarda Kruskal Wallis testi kullanılmıştır. Kruskal Wallis test sonrasında farklı olan grubu belirlemek için çoklu karşılaştırma yöntemi olarak Dunn's Testi kullanılmıştır. Ölçek puanları arasındaki ilişki değerlendirilirken Spearman korelasyon analizi kullanılmıştır. Anlamlılık $p<0,05$ düzeyinde değerlendirilmiştir.

Etik İzin: Bu çalışma, bir üniversitenin kurumsal inceleme kurulu (2022/103-1554) tarafından onaylanmıştır. Ankete başlamadan önce tüm katılımcıların onayı alınmış, çalışma Helsinki Bildirgesi'ndeki etik ilkelere uygun olarak yapılmış ve kişisel bilgilerin gizliliği sağlanmıştır.

Bulgular

Çalışmamıza dahil olan postmenopozal dönemdeki 452 kadının yaş ortalaması 56,33±5,85, menopoza girme yaş ortalaması 47,17±2,62 olarak bulunmuş, kadınların yarısından fazlasının ilkokul mezunu olduğu saptanmıştır.

Tablo 1. *Kadınların sosyo-demografik özellikleri*

	(n)	(%)
Yaş grubu		
45-50 yaş	108	23,89
51-55 yaş	60	13,27
56-60 yaş	161	35,63
61-65 yaş	123	27,21
Medeni durum		
Evli	428	94,69
Bekar	24	5,31
Eğitim durumu		
İlkokul	295	65,27
Ortaokul	83	18,36
Lise	44	9,73
Üniversite	30	6,64
Sosyal güvence		
Var	420	92,92
Yok	32	7,08
Çalışma durumu		
Çalışan	49	10,84
Çalışmayan	403	89,16
Gelir düzeyi		
Gelir giderden düşük	257	56,86
Gelir gidere eşit	171	37,83
Gelir giderden fazla	24	5,31
Sigara kullanma durumu		
Kullanan	61	13,50
Kullanmayan	391	86,50
Kronik bir hastalık		
Var	161	35,62
Yok	291	64,38
İlk gebelik yaşı		
18-20 yaş	120	26,55
21-23 yaş	177	39,16
24 ve üstü	155	34,29
Menopoz yaşı		
45 ve altı	91	20,13
46-48 yaş	192	42,48
49 ve üstü	169	37,39
Gebelik sayısı		
1-3	426	94,25
4 ve üstü	26	5,75

Tablo 1(Devamı). *Kadınların sosyo-demografik özellikleri*

Düşük sayısı		
Yok	324	71,68
1-3	128	28,32
Yaşayan çocuk sayısı		
1-3	447	98,89
4 ve üstü	5	1,11
Kadın hastalıkları ile ilgili sağlık sorunu		
Var	77	17,04
Yok	375	82,96
Kadın hastalıkları ile ilgili düzenli kontrole gitme		
Evet, kontrol amacıyla	66	14,60
Evet, tedavi amacıyla	41	9,07
Hayır	345	76,33
Ailede kadın hastalıkları ile ilgili kanser tanısı almış birey		
Var	29	6,42
Yok	423	93,58
Kadın hastalıkları kanserlerinin önlenebilmesine ilişkin görüş		
Önlenebilir	440	97,35
Önlenemez	12	2,65

Çalışmamıza dahil olan postmenopozal dönemdeki kadınların sosyodemografik özellikleri değerlendirildiğinde %89,16'sının çalışmadığı, %65,27'sinin ilkokul mezunu olduğu, %13,50'sinin sigara kullandığı bulunmuştur. Katılımcılardan %17,04'ünün kadın hastalıkları ile ilgili sağlık sorunu yaşadığı, %76,33'ünün ise kadın hastalıkları ile ilgili düzenli kontrole gitmediği saptanmıştır. Katılımcılardan %97,35'inin kadın hastalıkları kanserlerinin önlenebilir olduğu görüşüne sahip olduğu bulunmuştur (Tablo 1).

Tablo 2. *Kadınların sosyo-demografik özelliklerine göre JİKFÖ ve SYBDÖ puanlarının değerlendirilmesi*

	n	**JİKFÖ**			**SYBDÖ**		
		Ortanca	**Min-Max**	**p**	***Ortanca***	**Min-Max**	**p**
Yaş grubu							
45-50 yaş	108	**140*[c]**	90-163	**0,041*[b]**	120	80-138	0,107
51-55 yaş	60	138	84-160		123	81-140	
56-60 yaş	161	135	84-161		116	76-135	
61-65 yaş	123	133	84-159		119	77-136	
Medeni durum							
Evli	428	136	87-160	0,311[a]	118	76-138	0,291
Bekar	24	140	88-163		123	76-140	
Eğitim durumu							
İlkokul	295	136	87-161	0,983[b]	118	76-139	0,452
Ortaokul	83	136	87-161		121	78-140	
Lise	44	137	88-163		121	79-140	
Üniversite	30	136	85-162		117	76-137	
Sosyal güvence							
Var	420	139	86-158	**<0,001*[a]**	120	80-140	**<0,001*[a]**
Yok	32	98	84-150		96	76-34	
Çalışma durumu							
Çalışan	49	137	88-162	0,852[a]	119	76-137	0,865
Çalışmayan	403	136	84-162		119	76-138	
Gelir düzeyi							
Gelir giderden düşük	257	136	84-160	0,743[b]	119	76-140	0,993
Gelir gidere eşit	171	137	84-161		119	76-140	
Gelir giderden fazla	24	136,5	86-161		119	76-140	

Tablo 2(Devamı). *Kadınların sosyo-demografik özelliklerine göre JİKFÖ ve SYBDÖ puanlarının değerlendirilmesi*

Sigara kullanma durumu							
Kullanan	61	136	88-162	0,740[a]	117	76-133	0,390
Kullanmayan	391	136	84-162		119	76-136	
Kronik bir hastalık							
Var	161	135	84-160	0,373[a]	118	76-136	0,884
Yok	291	137	90-163		119	76-133	
İlk gebelik yaşı							
18-20 yaş	120	137	90-165	0,578[b]	118,5	76-139	0,796
21-23 yaş	177	136	88-162		119	76-136	
24 ve üstü	155	135	88-165		119	76-135	
Menopoz yaşı							
45 ve altı	91	136	86-165	0,700[b]	119	77-139	0,927
46-48 yaş	192	135	84-162		118	76-140	
49 ve üstü	169	138	84-164		120	79-140	
Gebelik sayısı							
1-3	426	136	89-161	0,755[a]	119	76-140	0,217
4 ve üstü	26	135	85-160		114	76-134	
Düşük sayısı							
Yok	324	137	90-165	0,704[a]	119	76-134	0,401
1-3	128	136	88-165		117	76-135	
Yaşayan çocuk sayısı							
1-3	447	137	90-165	0,106[a]	119	77-140	0,041*[a]
4 ve üstü	5	122	88-142		100	76-122	
Kadın hastalıkları ile ilgili sağlık sorunu							
Var	77	135	87-160	0,406[a]	120	76-138	0,663
Yok	375	137	90-161		118	76-136	
Kadın hastalıkları ile ilgili düzenli kontrole gitme							
Evet, kontrol amacıyla	66	136,5	91-160	0,843[b]	119,5	76-135	0,986
Evet, tedavi amacıyla	41	135	88-158		118	76-140	
Hayır	345	137	86-165		119	78-139	
Ailede kadın hastalıkları ile ilgili kanser tanısı almış birey							
Var	29	133	84-156	0,327[a]	117	78-136	0,696
Yok	423	137	84-160		119	79-140	
Kadın hastalıkları kanserlerinin önlenebilmesine ilişkin görüş							
Önlenebilir	440	137	88-162	**<0,001*[a]**	119	76-136	**<0,001*[a]**
Önlenemez	12	96	84-151		89	76-133	

[a]Mann-Whitney U, [b]Kruskall Wallis, [c]Dunn's Çoklu Karşılaştırma Testi
*p<0,05

Tablo 2'de kadınların sosyo-demografik özelliklerine göre JİKFÖ ve SYBDÖ puanları değerlendirilmiştir. JİKFÖ ile yaş grupları arasında istatistiksel olarak anlamlı fark saptanmıştır (p<0,05). Farkın kaynağının tespit edilebilmesi için yapılan Post-hoc testi sonucunda farkın, 45-50 yaş grubunda olanlar arasında olduğu ve bu yaş grubundaki kadınlarda JİKFÖ puan ortalamalarının daha yüksek olduğu (p=0,041) belirlenmiştir. Sosyal güvencesi olan kadınların JİKFÖ ve SYBDÖ puan ortalamaları istatistiksel olarak anlamlı düzeyde yüksek bulundu (p<0,001). Kadın hastalıkları kanserlerinin önlenebilir olduğunu ifade eden kadınların JİKFÖ ve SYBDÖ puan ortalamaları anlamlı düzeyde daha yüksek bulunmuştur (p<0,001).

Tablo 3. *Kadınların JİKFÖ Puanları*

	n	$\boldsymbol{Ortanca}$	Min	Max
Jinekolojik Kanserlerde Rutin Kontrol ve Ciddi Hastalık Algısı Farkındalığı	452	78	38	97
Jinekolojik Kanser Riskleri Farkındalığı	452	24	18	31
Jinekolojik Kanserlerden Korunma Farkındalığı	452	19	11	24
Jinekolojik Kanserlerde Erken Tanı ve Bilgi Farkındalığı	452	14	8	20
JİKFÖ Toplam Puan	452	136	84	165

JİKFÖ: Jinekolojik Kanser Farkındalık Ölçeği
min: minimum max:maximum

Katılımcıların JİKFÖ toplam puan ortanca değeri ve alt boyut ortanca değerleri Tablo 3'de verilmiştir. JİKFÖ toplam puan ortanca değeri 136 (min=84 max=165) olarak bulunmuştur. Jinekolojik kanser riskleri farkındalığı alt boyut puan ortanca değeri 24 (min=18 max=31), jinekolojik kanserlerde erken tanı ve bilgi farkındalığı alt boyutu puan ortanca değeri ise 14 (min=8 max 20) olarak bulunmuştur.

Tablo 4. *Kadınların SYBDÖ Puanları*

	n	$\overline{\boldsymbol{Ortanca}}$	Min	Max
Sağlık Sorumluluğu	452	19	12	25
Fiziksel Aktivite	452	14	9	21
Beslenme	452	19	12	26
Manevi Gelişim	452	25	17	32
Kişilerarası İlişkiler	452	23	13	32
Stres Yönetimi	452	17	10	24
SYBDÖ Toplam Puan	452	119	76	140

SYBDÖ: Sağlıklı Yaşam Biçimi Davranışları Ölçeği
min: minimum max:maximum

Tablo 4'de kadınların SYBDÖ puanları değerlendirildiğinde ölçek toplam puan ortanca değeri 119 (min=76, max=140), fiziksel aktivite alt boyut puan ortanca değeri 14 (min=9, max=21), stres yönetimi alt boyut puan ortanca değerinin ise 17 (min=10, max=24) olduğu belirlenmiştir.

Tablo 5. *Kadınların JİKFÖ ve SYBDÖ puanlarının arasındaki korelasyonların değerlendirilmesi*

		Sağlık Sorumluluğu	Fiziksel Aktivite	Beslenme	Manevi Gelişim	Kişilerarası İlişkiler	Stres Yönetimi	SYBD
Jinekolojik Kanserlerde Rutin Kontrol ve Ciddi Hastalık Algısı Farkındalığı	r	0,558	0,359	0,527	0,600	0,566	0,472	0,622
	p	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*
	n	452	452	452	452	452	452	452
Jinekolojik Kanser Riskleri Farkındalığı	r	0,028	0,203	0,343	0,148	0,200	0,248	0,231
	p	0,555	<0,001*	<0,001*	0,002	<0,001*	<0,001*	<0,001*
	n	452	452	452	452	452	452	452
Jinekolojik Kanserlerden Korunma Farkındalığı	r	0,368	0,001	0,091	0,569	0,654	0,333	0,426
	p	<0,001*	0,980	0,054	<0,001*	<0,001*	<0,001*	<0,001*
	n	452	452	452	452	452	452	452
Jinekolojik Kanserlerde Erken Tanı ve Bilgi Farkındalığı	r	0,038	0,032	0,026	-0,001	0,070	0,060	0,045
	p	0,417	0,497	0,584	0,976	0,137	0,203	0,334
	n	452	452	452	452	452	452	452
JİKFÖ	r	0,505	0,315	0,483	0,590	0,597	0,473	0,601
	p	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*
	n	452	452	452	452	452	452	452

JİKFÖ: Jinekolojik Kanser Farkındalık Ölçeği
r: Spearman's rank correlation coefficient *p<0,05

Tablo 5'de kadınların JİKFÖ ve SYBDÖ puanlarının arasındaki korelasyonlar değerlendirildiğinde JİKFÖ ve SYBDÖ toplam puanları arasında pozitif yönde korelasyon bulunmuştur (p<0,05). Jinekolojik kanserlerde rutin kontrol ve ciddi hastalık algısı farkındalığı alt ölçeği ile SYBDÖ tüm alt boyutlar ve ölçek puan ortancaları arasında pozitif yönde korelasyon saptanmıştır (p<0,001). Jinekolojik kanser riskleri farkındalığı alt ölçek puanı ile SYBDÖ alt ölçeklerinden fiziksel aktivite, beslenme, manevi gelişim, kişilerarası ilişkiler, stres yönetimi puan ortancaları arasında pozitif yönde korelasyon bulunmuştur (p<0,05). Jinekolojik kanserlerden korunma farkındalığı alt ölçeği ile SYBDÖ tüm alt boyutlar ve ölçek puan ortancaları arasında pozitif yönde orta düzeyde korelasyon olduğu belirlenmiştir (p<0,001).

Tartışma

Postmenopozal dönemdeki kadınlarda sağlıklı yaşam biçimi davranışlarının jinekolojik kanser farkındalığına etkisinin değerlendirilmesinin amaçlandığı çalışmamızın örneklem grubunu 452 postmenopozal kadın oluşturmuştur. Katılımcıların yaş ortalaması 56,33±5,85, menopoza girme yaş ortalamaları ise 47,17±2,62 olarak bulunmuştur. Dünya genelinde menopoza girme yaşı 50-52 arasında iken Türkiye'de menopoza girme yaşı 46-49 arasında değişmektedir.[18,19] Türkiye'de yapılan farklı çalışmalarda da kadınların menopoz yaşı çalışma sonuçlarımız ile benzer bulunmuştur.[20,21] Bu çalışmaya katılan kadınların %56,86'sı gelirinin giderinden düşük olduğunu belirtmiştir. Çalışmalarda kadınların büyük çoğunluğunun gelirinin giderine eşit olduğu bulunmuştur.[6,22] Bu sonucun çalışmamıza dahil olan kadınların %65,27'sinin ilkokul mezunu olması ve sadece %10,84'ünün çalışıyor olmasından kaynaklandığı düşünülmektedir. Bu çalışmaya katılan kadınların %92,92'si sosyal güvencesinin olduğunu, %86,50'si sigara kullanmadığını ifade etmiştir. Bu bulgular farklı çalışma sonuçları ile benzerdir.[8,10,23]

Kadınların sosyo-demografik özelliklerine göre JİKFÖ değerlendirildiğinde yaş, sosyal güvence ve kadın hastalıkları kanserlerinin önlenebilmesine ilişkin görüş ile JİKFÖ toplam puanları arasında anlamlı düzeyde ilişki saptanmıştır. Bu çalışmada yaş arttıkça jinekolojik kanser farkındalık düzeyinin azaldığı sonucuna ulaşılmış ve 45-50 yaş grubundaki kadınların JİKFÖ puan ortalamaları daha yüksek bulunmuştur. Literatürde jinekolojik kanser farkındalığı ve yaş ilişkisi incelendiğinde farklı sonuçlarla karşılaşılmaktadır. Bir çalışmada 50 yaş üzerindeki

kadınların jinekolojik kanser farkındalık düzeyi daha düşük bulunurken, Öztürk ve arkadaşlarının çalışmasında jinekolojik farkındalık düzeyinin yaşla doğru orantılı olarak arttığı saptanmıştır.[10,21]
Kadın hastalıkları konusunda sağlık sorunu yaşayan, kadın hastalıkları nedeniyle düzenli kontrole giden, ailesinde kadın hastalıkları kanseri tanısı almış birey bulunan, jinekolojik kanserlerin önlenebilir olduğuna dair görüşe sahip olan kadınların jinekolojik kanser farkındalık düzeyi daha yüksek bulunmuştur. Şenol ve ark'nın çalışmasında bu çalışma sonuçları ile benzer biçimde jinekolojik kanserlerin önlenebilir olduğuna dair görüşe sahip kadınların jinekolojik kanser farkındalık düzeyi yüksek bulunmuştur.[21]
Bu çalışmada JİKFÖ toplam puan ortanca değeri 136 olarak bulunmuştur. Gözüyeşil ve arkadaşlarının çalışmasında JİKFÖ toplam puan ortanca değeri 153 olarak bulunmuştur.[8] Atlas ve Güneri'nin çalışmasında JİKFÖ toplam puan ortalaması 160,31±22,42, Dal ve Ertem'in çalışmasında ise ölçek toplam puan ortalaması 155,8±17,5 olarak saptanmıştır.[16,24] Bu sonuçlara göre araştırmaya katılan kadınların jinekolojik kanser farkındalık düzeyinin daha düşük olduğu görülmektedir. Bu durumun nedeni örneklem grubunun postmenopozal kadınlardan oluşması, dolayısıyla ileri yaş kadınları içermesi olarak düşünülmektedir. Şenol ve ark.'nın çalışmasında üreme çağındaki kadınların JİKFÖ puan ortalamaları 150,7±20,6 olarak bulunurken, postmenopozal kadınların JİKFÖ puan ortalamaları 144,4±18,5 olarak bulunmuştur.[21]
Kadınların SYBDÖ puanları değerlendirildiğinde sağlıklı yaşam biçimi davranışları ölçeği toplam puan ortanca değeri 119 idi. Postmenopozal kadınların sağlıklı yaşam biçimi davranışlarının değerlendirildiği bir çalışmada kadınların ölçek toplam puan ortalaması 132,31±21,42 iken, farklı bir çalışmada 55 yaş üzeri kadınların sağlıklı yaşam biçimi davranışları ölçek toplam puan ortalaması 107,81±1,07 olarak bulunmuştur.[25,26]
Bu çalışmada SYBDÖ ile JİKFÖ arasında pozitif yönde korelasyon bulunmuştur. Akın ve ark'nın araştırmasında sağlıklı yaşam biçimi davranışları ile servikal kanserin erken tanısına yönelik tutum arasında pozitif yönde bir ilişki saptanmıştır.[23] Farklı bir çalışmada postmenopozal kadınlar arasında endometriyal kanser riskini azaltmada sağlıklı yaşam tarzının potansiyel önemi vurgulanmıştır.[27]

Araştırmanın Sınırlılığı
Çalışmaya sosyal medya programları ile katılımcılar davet edildiği ve çevrimiçi form aracılığıyla veriler toplandığı için en az temel düzeyde dijital okuryazarlığı olan postmenopozal kadınlara ulaşılabilmiştir.

Sonuç
Çalışmada jinekolojik kanser farkındalığının yaş, sosyal güvencenin varlığı ve jinekolojik kanserlerin önlenebilmesine dair olumlu görüşe sahip olmakla ilişkili olduğu bulunmuştur. Postmenopozal dönemdeki kadınların sağlıklı yaşam biçimi davranışları ile jinekolojik kanser farkındalık düzeyi arasında orta düzeyde korelasyon olduğu sonucuna ulaşılmıştır. Sağlıklı yaşam biçimi davranışlarını benimsemenin ve jinekolojik kanser farkındalık düzeyinin birbirini etkilediği, sağlıklı yaşam biçimi davranışlarının artırılmasının jinekolojik kanser farkındalık düzeyini olumlu yönde geliştireceği düşünülmektedir. Bu nedenle kadınların sağlıklı yaşam biçimi davranışlarını artırmaya yönelik eğitimler verilmesi, sağlıklı beslenme, egzersiz, stres yönetimi gibi konularda olumlu davranış geliştirmesi yönünde desteklenmesi kadınların sağlığının korunması, geliştirilmesi jinekolojik kanserlerden korunma açısından önem taşımaktadır.

Araştırma Desteği: Çalışmayı maddi olarak destekleyen kişi/kuruluş yoktur.

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Knowledge, attitudes, and behaviours of primary health care workers regarding HPV infection and prevention: an example from Türkiye

Birinci basamak sağlık çalışanlarının HPV enfeksiyonu ve korunmaya ilişkin bilgi, tutum ve davranışları: Türkiye'den bir örnek

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Abstract

Introduction: This study aimed to determine the knowledge, attitudes, and behaviors of Turkish primary health care workers (HCWs) regarding human papillomavirus (HPV) infection, screening, and vaccines.

Methods: This cross-sectional study was conducted with family physicians and nurses/midwives working in family health centers (FHC) in Sivas province in the Central Anatolia Region of Türkiye between January 1, 2023 and February 15, 2023. The sociodemographic data form and HPV Knowledge Scale were used. The independent sample t-test, the F test (ANOVA) (post hoc Bonferroni test), and the chi-squared test were performed.

Results: The study was conducted with a total of 275 HCWs. Of the HCWs, 57.5% were nurses/midwives and 69.8% were female. All HCWs had heard of HPV, 97.8% had heard of the HPV test, and 84% had heard of the HPV vaccine. 79.3% had not recommended the HPV vaccine to pre-adolescents and 51.6% to people at risk. The most common reasons for this were the lack of information about HPV vaccines, their expense, and the lack of coverage by the government. The part with the lowest level of HPV knowledge was about the HPV vaccine. The total score of the scale was higher in males, physicians, and those who were working in the FHC unit where the adolescent rate was below 10%, in those who recommended the HPV vaccine, and in those who had not recommended the vaccine because it is expensive and not covered by the government. Conclusion: It is recommended to improve the lack of knowledge among HCWs, mainly those serving the adolescent population, about HPV vaccines. Government coverage of HPV vaccines may play a role in increasing the rate at which HCWs recommend these vaccines.

Key words: Human papillomavirus, HPV vaccines, health knowledge, attitudes, practice

Özet

Giriş: Bu çalışma, Türk birinci basamak sağlık çalışanlarının human papillomavirus (HPV) enfeksiyonu, taramaları ve aşıları ile ilgili bilgi, tutum ve davranışlarını belirlemeyi amaçlamıştır.

Yöntem: Bu kesitsel araştırma, 1 Ocak 2023 ile 15 Şubat 2023 tarihleri arasında Türkiye'nin İç Anadolu Bölgesi'ndeki Sivas ilinde aile sağlığı merkezlerinde (ASM) çalışan aile hekimleri ve hemşire/ebelerle yapıldı. Sosyodemografik veri formu ve HPV Bilgi Ölçeği kullanıldı. Bağımsız örneklem t-testi, F testi (ANOVA) (post hoc Bonferroni testi) ve ki-kare testi uygulandı. Bulgular: Çalışma toplam 275 sağlık çalışanı ile yürütüldü. Sağlık çalışanlarının %57,5'i hemşire/ebe ve %69,8'i kadındı. Tüm sağlık çalışanları HPV'yi duymuştu, %97,8'i HPV testini duymuştu ve %84'ü HPV aşısını duymuştu. %79,3'ü ergenlik öncesi çocuklara ve %51,6'sı risk altındaki kişilere HPV aşısını önermemişti. Bunun en sık nedenleri, HPV aşıları hakkında bilgi eksikliği, bunların maliyeti ve devlet tarafından karşılanmamasıydı. HPV bilgisinin en düşük olduğu kısım HPV aşısı ile ilgiliydi. Ölçek toplam puanı erkeklerde, hekimlerde, adölesan oranı %10'un altında olan ASM çalışanlarında, HPV aşısını önerenlerde ve pahalı olduğu ve devlet tarafından karşılanmadığı için aşıyı önermeyenlerde daha yüksekti.

Sonuç: Başta adölesan popülasyona hizmet veren sağlık çalışanları olmak üzere sağlık çalışanlarının HPV aşıları konusundaki bilgi eksikliğinin giderilmesi önerilmektedir. HPV aşılarının devlet tarafından karşılanması, sağlık çalışanlarının bu aşıları tavsiye etme oranını artırmada rol oynayabilir.

Anahtar kelimeler: Human papillomavirüsü, HPV aşıları, sağlık bilgisi, tutum, uygulama

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Introduction

Human papillomavirus (HPV) infection is a common public health threat due to increased morbidity, mortality, and costs associated with diseases such as genital warts and cervical, vulvar, anal, penile, and head and neck cancers.[1,2] It is the most common viral infection of the reproductive system and the main cause of cervical cancer.[3] Almost all cervical and anal cancers, 63-75% of vulvar, vaginal, and penile cancers, and approximately 70% of oropharyngeal cancers are attributable to HPV.[4,5]

Cervical cancer remains the primary threat of HPV infection. It is the fourth most common cancer among women globally, with an estimated 604,000 new cases and 342,000 deaths by 2020.[3] It was responsible for 7.5% of all female cancer-related deaths in 2018.[3] In Türkiye, it is one of the ten most common cancers in women, ranking ninth at a rate of 2.3%, and its incidence was found to be 4.3 per hundred thousand.[6] The incidence of cervical cancer in Türkiye is below that of many countries in the world that have developed and carried out national screening programs. However, the incidence of cervical cancer tends to increase slightly.[7]

HPV vaccination, screening and treatment of precancerous lesions are the most appropriate ways to prevent cervical cancer. Cervical cancer can be cured if diagnosed at an early stage and treated promptly.[3] It is the only cancer in which precursor lesions can be seen and an early diagnosis can be made before the cancer starts.[7] Comprehensive cervical cancer control includes primary prevention (vaccination against HPV), secondary prevention (screening and treatment of precancerous lesions), tertiary prevention (diagnosis and treatment of invasive cervical cancer), and palliative care.[3] Currently, despite early screening and serious awareness campaigns, only 46% of patients can be diagnosed at an early stage. When all patients were examined, the 5-year survival rate for cervical cancer was 67%. If it is detected in the early stage, that is, it has not extended to the surrounding tissues and has not metastasized to other organs at the time of diagnosis, the 5-year survival rate exceeds 90%.[7] This shows the importance of screening methods and the early diagnosis of cervical cancer.

Since the use of the HPV vaccine has been associated with a reduction in the prevalence of HPV-related diseases, HPV-related cancers, and HPV genotypes, it has been shown to be successful as a primary prevention intervention against cervical cancers, with no serious reported adverse effects.[8] In May 2017, the World Health Organization emphasized the importance of cervical cancer and other HPV-related diseases as a global public health threat, and recommended the inclusion of HPV vaccines in national immunization programs as part of a coordinated and comprehensive strategy.[9] HPV vaccines have not yet been included in the national immunization program in Türkiye.[10]

Primary health care workers (HCWs) play a key role in promoting HPV screening and vaccination, similar to the acceptance of all other health-related practices. To be effective, HCWs need detailed basic information about HPV and guidance on the best practice for communicating with their patients.[11] However, insufficient knowledge and awareness of the value of the HPV vaccine among HCWs has been found to be one of the biggest obstacles to successful vaccination campaigns.[12] In the literature, we observed that very few previous studies, both in Türkiye and in other countries, included primary HCWs. This study aimed to determine the knowledge, attitudes, and behaviors of Turkish primary HCWs regarding HPV infection, screening, and vaccines.

Materials and Methods

This cross-sectional study was conducted with family physicians and nurses/midwives providing primary healthcare services throughout Sivas province in the Central Anatolia Region of Türkiye between January 1, 2023, and February 15, 2023. The study population consisted of all family physicians (n=200) and family health workers (n=170) working in 27 family health centers (FHC) in the city center and 22 in the districts. The minimum sample size was calculated to be 189 using the n= [DEFF*Np(1-p)] / [(d2/Z21-α/2*(N-1) + p*(1-p)] formula in the OpenEpi (Version 3) program (N= 370, effect value d= 5%, confidence interval= 95%, p= 50%). Persons who were not on duty at the time the questionnaires were distributed or who answered the questionnaires incompletely were excluded from the study.

The data collection tools were hand-delivered to the participants by the researchers and collected on the same day. No selection was made between FHCs. HCWs who did not want to fill out the questionnaire due to workload or who were not present at the FHC on the day the form was distributed for any reason, did not participate in the study. Individuals who agreed to participate in the study were informed of the study, and written informed consent was obtained. Data collection was performed in accordance with the Declaration of Helsinki. Approval was obtained from the Sivas Cumhuriyet University Non-invasive Clinical Research Ethics Committee (decision no:2022-11/29, date:16.11.2022).

Sociodemographic data form and HPV Knowledge Scale were used to obtain research data.

The sociodemographic data form consisted of 13 questions on age, sex, marital status, occupation, duration of professional work, place of work, number of populations defined to the FHC unit, ratio of adolescents aged 11-18,

information source about HPV vaccine, HPV vaccination recommendation to pre-adolescent children and people at risk, reason for not recommending HPV vaccine, and HPV test recommendation.

Waller et al. developed the HPV Knowledge Scale. This is a 35-item scale measuring knowledge levels regarding HPV, HPV vaccines, and screening tests.[13] The Turkish reliability and validity were established by Demir, and two items of the scale were excluded.[14] The final version of the scale, with 33 items, was administered to the participants. In scoring the scale, one point is given for each correct answer, while wrong answers and "I don't know" answers are scored as zero. The total scores obtained from the scale ranged from 0 to 33, with higher scores indicating higher knowledge.

The data obtained from the study were evaluated using SPSS 22.0. The skewness and kurtosis coefficients were calculated to determine the suitability of the numerical data for a normal distribution. Because the skewness and kurtosis values of the numerical data in the study were between -1 and + 1, it was considered to have a normal distribution.[15] Descriptive statistics are presented as means, standard deviations, and percentile distributions. Because the data met the parametric conditions, while comparing the means, the independent sample t-test was used for two independent groups, and the F test (ANOVA) was used for more than two groups (post hoc Bonferroni test, since the assumption of homogeneity was provided). Evaluation of the data obtained by counting was performed using the chi-squared test. The Cronbach's alpha value was calculated as 0.85 for the HPV Knowledge Scale. $P < 0.05$ was considered significant.

Results

Of the HCWs working in FHCs across the province, 275 agreed to participate (participation rate: 74.3%). Of the HCWs, 57.5% were nurses/midwives and 69.8% were female. Those who were married, who were working in the city center, and who were working in the FHC unit where the adolescent rate was 11-25% were in the majority. The source of information about HPV vaccines for 56% of HCWs was a professional source. More than half of the HCWs had not recommended HPV vaccination to pre-adolescents and at-risk individuals. The most common reason for this is a lack of knowledge regarding HPV vaccines. To date, 81.8% of HCWs have recommended HPV testing (Table 1).

Table 1. *Characteristics of the health care workers (n=275)*

Variables	**n (%)**	**Mean ± SD**
Age		39.0 ± 8.3
Sex		
Male	83 (30.2)	
Female	192 (69.8)	
Marital status		
Single/widow	59 (21.5)	
Married	216 (78.5)	
Occupation		
Physician	117 (42.5)	
Nurse/ midwife	158 (57.5)	
Worked place of residence		
City centre	145 (52.7)	
District/village	130 (47.3)	
Years worked in the profession		15.7 ± 8.3

Table 1(..). *Characteristics of the health care workers (n=275)*

Proportion of adolescents aged 11-18 years defined to the FHC unit		
≤ 10%	17 (6.2)	
11–25%	58 (21.1)	
> 25%	12 (4.4)	
Non-responded	188 (68.4)	
Population defined to the FHC unit		3035.3 ± 600.9
Source of information about the HPV vaccine (n=231)		
Professional resource (Scientific literature, course/congress, etc.)	131 (56.7)	
Media (Internet, newspaper, radio, television)	53 (22.9)	
Interpersonal discussion (with colleagues, relatives, or patients)	47 (20.3)	
HPV vaccination recommendation for pre-adolescents		
No	218 (79.3)	
Yes	57 (20.7)	
HPV vaccination recommendation for people at risk		
No	142 (51.6)	
Yes	133 (48.4)	
The reason why no HPV vaccine has been recommended until now		
Lack of information about HPV vaccines	101 (36.7)	
Expensive and not covered by the government	38 (13.8)	
Thinking it's not effective	3 (1.1)	
Thinking there are side effects	4 (1.5)	
Non-responded	129 (46.9)	
HPV testing recommendation for people in the appropriate age range		
No	50 (18.2)	
Yes	225 (81.8)	

SD Standard deviation, *FHC* Family Health Centre, *HPV* Human papilloma virus

All participants had heard of HPV infection. A total of 269 people (97.8%) had heard of the HPV test, whereas 231 (84%) had heard of the HPV vaccine. Table 2 presents the distribution of the frequency of correct responses to the HPV Knowledge Scale items according to the HCWs' recommendations for HPV vaccination and testing. Participants' general HPV knowledge score was 12.2±2.5, HPV testing knowledge score was 4.6±1.2, HPV vaccination knowledge score was 4.8±1.6, and HPV vaccine availability knowledge score was 1.1±0.9. The percentage of correct answers in seven of the 33 questions on the scale, three of which were on HPV vaccine availability knowledge, remained below 50%. The general HPV knowledge score was higher in those who recommended the HPV vaccine and testing ($P < 0.001$ and $P = 0.041$, respectively). The HPV testing knowledge score was higher in those who recommended vaccines to pre-adolescents ($P = 0.039$). The HPV vaccination knowledge score was higher in those recommending HPV vaccination ($P = 0.002$ for pre-adolescents and $P < 0.001$ for people at risk). The HPV vaccine availability knowledge score was also higher in those recommending the HPV vaccine ($P < 0.001$ for pre-adolescents, $P = 0.017$ for people at risk). Among all the statistically significant values, those who recommended HPV vaccine and testing had a higher rate of correct answers to the related questions (Table 2).

Table 2. *Distribution of the frequency of correct responses to the HPV Knowledge Scale items according to the health care workers' recommendation for HPV vaccine and testing*

	Total	HPV vaccination recommendation for pre-adolescents			HPV vaccination recommendation for people at risk			HPV testing recommendation		
		No	Yes	*P*	No	Yes	*P*	No	Yes	*P*
General HPV Knowledge Score (n=275)	12.2±2.5	11.9±2.6	13.2±1.5	**<0.001**	11.7±2.7	12.8±2.1	**<0.001**	11.6±3.2	12.3±2.3	**0.041**
HPV can cause cervical cancer	265(96.4)	208(95.4)	57(100.0)	0.129	134(94.4)	131(98.5)	0.105	45(90.0)	220(97.8)	**0.020**
A person can have HPV for many years without knowing it	264(96.0)	208(95.4)	56(98.2)	0.469	138(97.2)	126(94.7)	0.467	46(92.0)	218(96.9)	0.119
Having many sexual partners increases the risk of getting HPV	265(96.4)	209(95.9)	56(98.2)	0.693	136(95.8)	129(97.0)	0.751	46(92.0)	219(97.3)	0.087
HPV is very rare*	231(84.0)	181(83.0)	50(87.7)	0.511	115(81.0)	116(87.2)	0.213	39(78.0)	192(85.3)	0.286
HPV can be passed on during sexual intercourse	257(93.5)	201(92.2)	56(98.2)	0.134	133(93.7)	124(93.2)	0.886	46(92.0)	211(93.8)	0.751
HPV always has visible signs or symptoms*	236(85.8)	184(84.4)	52(91.2)	0.271	120(84.5)	116(87.2)	0.638	40(80.0)	196(87.1)	0.280
Using condoms reduces the risk of getting HPV	248(90.2)	198(90.8)	50(87.7)	0.651	127(89.4)	121(91.0)	0.821	41(82.0)	207(92.0)	0.061
HPV can cause HIV/AIDS*	158(57.5)	120(55.0)	38(66.7)	0.153	75(52.8)	83(62.4)	0.108	30(60.0)	128(56.9)	0.807
HPV can be transmitted through genital skin-to-skin contact	208(75.6)	159(72.9)	49(86.0)	0.062	99(69.7)	109(82.0)	**0.018**	34(68.0)	174(77.3)	0.227
Men cannot get HPV*	211(76.7)	161(73.9)	50(87.7)	**0.042**	99(69.7)	112(84.2)	**0.004**	41(82.0)	170(75.6)	0.429
Sex at a young age increases the risk of getting HPV	213(77.5)	165(75.7)	48(84.2)	0.233	103(72.5)	110(82.7)	**0.044**	36(72.0)	177(78.7)	0.405
There are many types of HPV	244(88.7)	188(86.2)	56(98.2)	**0.021**	120(84.5)	124(93.2)	**0.036**	40(80.0)	204(90.7)	0.056
HPV can cause genital warts	245(89.1)	189(86.7)	56(98.2)	**0.024**	119(83.8)	126(94.7)	**0.007**	43(86.0)	202(89.8)	0.600
HPV can be cured with antibiotics*	185(67.3)	140(64.2)	45(78.9)	0.051	82(57.7)	103(77.4)	**0.001**	28(56.0)	157(69.8)	0.087
Most sexually active people will be infected with HPV at some point in their lives	103(37.5)	73(33.5)	30(52.6)	**0.012**	48(33.8)	55(41.4)	0.196	16(32.0)	87(38.7)	0.472
HPV does not usually need to be treated	23(8.4)	18(8.3)	5(8.8)	0.539	11(7.7)	12(9.0)	0.870	7(14.0)	16(7.1)	0.152
HPV Testing Knowledge Score (n=269)	4.6±1.2	4.5±1.2	4.8±0.9	**0.039**	4.5±1.2	4.7±1.2	0.098	4.6±1.3	4.6±1.1	0.981
If a woman tests positive for HPV, she will definitely get cervical cancer*	237(88.1)	183(86.3)	54(94.7)	0.131	115(84.6)	122(91.7)	0.104	37(84.1)	200(88.9)	0.519
An HPV test can be done at the same time as a smear test	246(91.4)	192(90.6)	54(94.7)	0.428	123(90.4)	123(92.5)	0.704	38(86.4)	208(92.4)	0.233
An HPV test can determine how long you have had an HPV infection*	187(69.5)	140(66.0)	47(82.5)	**0.026**	87(64.0)	100(75.2)	**0.046**	33(75.0)	154(68.4)	0.493
HPV testing is used to determine if HPV vaccination is needed*	195(72.5)	153(72.2)	42(73.7)	0.952	95(69.9)	100(75.2)	0.327	31(70.5)	164(72.9)	0.884
When you have an HPV test, you will get the results the same day*	238(88.5)	186(87.7)	52(91.2)	0.618	118(86.8)	120(90.2)	0.485	36(81.8)	202(89.8)	0.210
If an HPV test shows that a woman does not have HPV, her risk of cervical cancer is low	133(49.4)	106(50.0)	27(47.4)	0.724	71(52.2)	62(46.6)	0.359	27(61.4)	106(47.1)	0.118
HPV Vaccination Knowledge Score (n=231)	4.8±1.6	4.7±1.6	5.5±1.3	**0.002**	4.4±1.6	5.3±1.5	**<0.001**	4.6±1.4	4.9±1.6	0.299
Girls who have received the HPV vaccine do not need a Pap test when they are older*	197(85.3)	153(83.6)	44(91.7)	0.240	93(80.2)	104(90.4)	**0.044**	29(78.4)	168(86.6)	0.298
One of the HPV vaccines offers protection against genital warts	136(58.9)	106(57.9)	30(62.5)	0.683	62(53.4)	74(64.3)	0.092	20(54.1)	116(59.8)	0.640
HPV vaccines offer protection against all sexually transmitted infections*	188(81.4)	148(80.9)	40(83.3)	0.856	89(76.7)	99(86.1)	0.097	29(78.4)	159(82.0)	0.778
Someone who is vaccinated against HPV vaccine cannot develop cervical cancer*	174(75.3)	134(73.2)	40(83.3)	0.208	77(66.4)	97(84.3)	**0.002**	24(64.9)	150(77.3)	0.161
HPV vaccines offer protection against most cervical cancers	191(82.7)	147(80.3)	44(91.7)	0.102	93(80.2)	98(85.2)	0.401	34(91.9)	157(80.9)	0.168
Three doses are required for the HPV vaccine	106(45.9)	78(42.6)	28(58.3)	0.075	42(36.2)	64(55.7)	**0.003**	13(35.1)	93(47.9)	0.210
HPV vaccines are most effective when given to people who have never had sex	127(55.0)	91(49.7)	36(75.0)	**0.003**	58(50.0)	69(60.0)	0.127	21(56.8)	106(54.6)	0.955
HPV Vaccine Availability Knowledge Score (n=231)	1.1±0.9	1.0±0.9	1.5±0.8	**<0.001**	0.9±0.8	1.2±0.9	**0.017**	0.9±0.9	1.1±0.9	0.298
HPV vaccine is recommended for all females ages 11-26 years	158(68.4)	117(63.9)	41(85.4)	**0.007**	76(65.5)	82(71.3)	0.344	22(59.5)	136(70.1)	0.279
HPV vaccine is licensed for women aged 30-45 years*	26(11.3)	19(10.4)	7(14.6)	0.573	10(8.6)	16(13.9)	0.287	4(10.8)	22(11.3)	0.926
Both HPV vaccines that are available (Gardasil & Cervarix) protect against both genital warts and cervical cancer*	12(5.2)	8(4.4)	4(8.3)	0.279	5(4.3)	7(6.1)	0.755	1(2.7)	11(5.7)	0.696
HPV vaccine is permitted for males aged 11-26 years	60(26.0)	39(21.3)	21(43.8)	**0.003**	22(19.0)	38(33.0)	**0.015**	9(24.3)	51(26.3)	0.964

*False, Tests used: Chi-square test and independent sample t-test

A total of 231 HCWs who had heard about HPV, HPV test, and HPV vaccine completed the entire HPV Knowledge Scale. Table 3 shows the distribution of the HPV Knowledge Scale results according to the characteristics. The total HPV Knowledge Scale score of HCWs was 22.2 ± 4.9. The total score of the scale was higher in males ($P = 0.005$) and physicians ($P < 0.001$), in those working in the FHC unit where the adolescent rate was below 10% (compared to more than 25%) (post hoc $P = 0.041$), in those recommending HPV vaccine to pre-adolescence ($P < 0.001$), in those recommending HPV vaccine to people at risk ($P = 0.001$), and in those not recommending HPV vaccine because it is expensive and not covered by the government (according to those who think there is a lack of information) (post hoc $P = 0.027$) (Table 3).

Table 3. *Distribution of HPV Knowledge Scale results according to the characteristics of the health care workers (n=231).*

Variables	**n (%)**	**Total Scale Score (Mean ± SD)**	
		22.2 ± 4.9	
Sex			
Male	66(28.6)	24.2 ± 4.1	t=2.830
Female	165(71.4)	22.6 ± 4.0	*P* =**0.005**
Marital status			
Single/widow	46(19.9)	23.3 ± 4.2	t=0.473
Married	185(80.1)	22.9 ± 4.1	*P* =0.673
Occupation			
Physician	100(43.3)	24.6 ± 3.8	t=5.153
Nurse/ midwife	131(56.7)	21.9 ± 3.9	*P* <**0.001**
Worked place of residence			
City centre	131(56.7)	23.0 ± 4.3	t=-0.095
District/village	100(43.3)	23.1 ± 3.9	*P* =0.924
Proportion of adolescents aged 11-18 years defined to the FHC unit (n=74)*			
1. ≤ 10%	12 (16.2)	25.3 ± 3.8	F=3.293
2. 11–25%	51(68.9)	23.5 ± 4.5	*P* =**0.043**
3. > 25%	11(14.9)	20.7 ± 3.8	
Post hoc test results		1>3, *P* =**0.041**	
Source of information about the HPV vaccine			
Professional resource (Scientific literature, course/congress, etc.)	131(56.7)	23.3 ± 4.2	F=1.108
Media (Internet, newspaper, radio, television)	53(22.9)	22.2 ± 3.9	*P* =0.332
Interpersonal discussion (with colleagues, relatives, or patients)	47(20.3)	23.2 ± 4.0	
HPV vaccination recommendation for pre-adolescents			
No	183(79.2)	22.5 ± 4.2	t=-4.799
Yes	48(20.8)	25.1 ± 3.0	*P* <**0.001**
HPV vaccination recommendation for people at risk			
No	116(50.2)	22.1 ± 3.7	t=-3.408
Yes	115(49.8)	23.9 ± 4.3	*P* =**0.001**
The reason why no HPV vaccine has been recommended until now (n=119)*			
1. Lack of information about HPV vaccines	82(68.9)	21.4 ± 3.7	
2. Expensive and not covered by the government	32(26.9)	23.8 ± 3.1	F=3.445
3. Thinking it's not effective	2(1.7)	22.0 ± 1.4	*P* =**0.019**
4. Thinking there are side effects	3(2.5)	22.3 ± 4.0	
Post hoc test results		2>1, *P* =**0.027**	
HPV testing recommendation for people in the appropriate age range			
No	37(16.0)	22.5 ± 3.8	t=-0.874
Yes	194(84.0)	23.1 ± 4.2	*P* =0.383

SD Standard deviation, *Those who did not respond were excluded from the analysis. Tests used: Independent sample t-test and one-way ANOVA (post hoc Bonferroni test)

Discussion

In this study, the knowledge, attitudes, and behaviors of Turkish primary HCWs regarding HPV infection, HPV screening, and HPV vaccines were analysed. In the current study, some HCWs had not heard of HPV testing and vaccination, even at a low rate. In a study conducted with female primary HCWs, approximately ten years ago, 87.4% of the participants had heard about the Pap smear test, which was much lower than the value we found in the current study.[16] In recent studies with HCWs, most of whom were physicians, the rates of those who had heard of the HPV vaccine were 87.2% and 94.4%, respectively.[17,18] The reason why these rates were found to be higher may be the high number of physicians in these studies. In fact, as in the current study, it has been reported that the level of HPV knowledge of physicians is higher than that of other HCWs.[19]

Similar to our study, some studies reported that the most frequently referenced source of information about HPV vaccines was professional resources (courses/congresses, scientific literature, expert physician opinions, etc.).[17,19] It has also been determined that the knowledge level of HPV and HPV vaccines is higher among those who use professional sources as information sources.[19] Although we did not find any statistical significance, this was also true in the current study.

It has been stated that HCWs require more training on HPV-related issues.[20] In the current study, the section with the lowest level of HPV knowledge was on HPV vaccine availability. In a study conducted with female HCWs in a university hospital, Güven et al. reported that the awareness of HCWs regarding HPV infection and cervical cancer was insufficient.[18] However, it was found that the level of HPV knowledge was higher in those working in preventive health services.[19] A high knowledge level of HCWs working in preventive health services in the name of protection from HPV infection is desired and necessary.

More than half of the HCWs included in the current study stated that they had never recommended the HPV vaccine to pre-adolescents or people at risk. In another study conducted in Türkiye, 62.5% of physicians and 74.2% of nurses stated that they did not even consider vaccinating their own children.[21] On the other hand, in a study conducted in Italy, contrary to studies in Türkiye, it was found that the rate of recommending the HPV vaccine by HCWs was over 80%.[19] In a study conducted among female HCWs in Cyprus, 83.5% of the participants were willing to vaccinate themselves to prevent cervical cancer.[22] The fact that Türkiye is a predominantly Muslim country and extramarital sexual intercourse is considered a sin according to Islamic belief, and that the incidence of cervical cancer caused by HPV (4.3 per hundred thousand) is quite low compared to the incidence in the world (13.3 per hundred thousand)[3,23], may create the perception that the vaccine is unnecessary. However, when we looked at the prevalence of HPV, it was found to be 3.9-69.4% for different cytological types in the world[23], whereas the prevalence found in studies conducted in Türkiye was not much different (3-28%).[24,25] This shows that the threat of HPV-related diseases maintains its importance also in Türkiye.

In one study, as we found in the current study, the most common reason why HCWs had not received HPV vaccine and had not recommended the vaccine until now was the lack of knowledge about the vaccine.[17] Believing that the HPV vaccine is unnecessary, thinking that it is expensive, having insufficient knowledge about the vaccine, thinking that it may have side effects, and not trusting the vaccine have been shown as reasons for hesitation by HCWs.[21] The second most common reason why the vaccine was not recommended in the current study was that it was expensive and was not covered by the government. In fact, in a study conducted in Türkiye, the majority of HCWs declared that they could vaccinate their own children only if HPV vaccines were included in the national vaccination calendar.[21]

In the current study, we found that the HPV knowledge score was higher in males, but another study conducted with HCWs reported that there was no significant difference according to sex.[19] This may be because all nurses/midwives we found with lower knowledge in our study were female. This finding also shows once again that the understanding of HPV as a female-specific disease has surpassed.[26] The low knowledge level of nurses and midwives is also an issue that needs to be emphasized. Previous studies have shown that HPV knowledge in nurses is an important precursor to a positive attitude towards vaccination.[27,28] Another significant difference in HPV knowledge score was the recommendation for the vaccine. In a study conducted in Italy, the HPV knowledge score of HCWs who recommended the vaccine to pre-adolescent children was higher, similar to the one in the current study.[19] However, it should also be mentioned that it is important to recommend the vaccine by the HCW, as well as to have the patient accept it. As a matter of fact, in their study, Szarewski et al. revealed that in some cases, a specialist's own knowledge would not be sufficient to meet the information needs of patients and to address their concerns.[29] It has been reported that HCWs should be supported by various educational initiatives that will enable them to convey health information efficiently, taking into account the perspectives of patients.[30] In the current study, we found that HCWs with a higher adolescent rate in the FHC unit had a lower knowledge score, but we could not find any data to compare with this in the literature. However, this situation is thought-provoking and has shown that some HCWs are not aware of the priorities of the society they serve. It is recommended to focus on this issue when providing HPV training to HCWs.

The strength of this study is that it was carried out with primary HCWs who are intertwined with the public and whose main task is to provide preventive health services. However, the limitation of the study is that it may be insufficient in terms of the representation of all primary HCWs in the country.

Conclusion

We found that the part with the lowest level of HPV knowledge was about the HPV vaccine. In fact, the rate of HCWs who had not heard about the HPV vaccine was higher than that of those who had not heard about HPV and HPV testing. Contrary to what has been reported in publications from other countries, we found that more than half of the HCWs had not recommended the HPV vaccine to date. The most common reasons for this were the lack of information about HPV vaccines, being expensive, and not being covered by the government. It is a known fact that HPV infection causes many diseases, particularly cervical cancer. Although the incidence of cervical cancer in Türkiye seems relatively low, the prevalence of HPV is not very different from that in the world. Therefore, it is recommended to eliminate the lack of knowledge of HCWs, mainly those serving the adolescent population, about HPV vaccines and to cover HPV vaccines by the government.

Disclosure of interest

The authors report there are no competing interests to declare.

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Mother-Infant Bonding: A Bibliometric Analysis
Anne Bebek Bağlanması : Bir Bibliyometrik Analiz

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Abstract
Introduction: Mother-infant bonding serves as a template for all relationships a person forms throughout his/her life and can be critical to any relationship a person will form. The aim of this study was to determine the development and current state of research on mother-infant bonding in the literature.
Method: The Web of Science (Wos) database was used to analyse bibliographic data between 1994 and 2022 (April) using the keyword "mother-infant bonding". Graphics, science maps, and analyses were created with the data.
Findings: The results of the WoS online database show that there are 50 documents and 41 resources (e.g. books, journals) related to publications about the term "mother-infant bonding" for the years between 1994 and 2022. The works of 221 authors were accessed. It was observed that keywords such as 'postnatal depression', 'postpartum depression', and 'symptoms' were used more frequently from 2015 onwards. It was observed that keywords such as 'depression', 'attachment', 'scale', and 'version' were used less frequently after 2017. The USA, Japan, and Germany were the top three countries in terms of number of publications and citations in the country comparisons.
Results: This study shows that research on mother-child bonding has increased in recent years. Data on priorities and trends in studies can help guide future academic research.
Keywords: mother- infant bonding, bonding, bibliometric, postpartum

Özet
Giriş: Anne bebek bağlanması, kişinin hayatı boyunca kurduğu bütün ilişkiler için bir taslak arz eder ve kişinin kuracağı her ilişkide belirleyici olabilmektedir. Bu çalışmada anne bebek bağlanması hakkındaki çalışmaların literatürdeki gelişimini ve mevcut durumunu belirlemek amaçlandı.
Yöntem: 1994 ve 2022 (Nisan) yılları arasında "Mother- infant bonding" anahtar sözcüğü, Web of Science (WoS) veritabanı kullanılarak bibliyografik verileri analiz etmek için kullanıldı. Veriler üzerinden grafikler, bilim haritaları ve analizleri yapıldı.
Bulgular: WoS çevirimiçi veritabanı sonuçlarına göre, 1994-2022 "Mother- infant bonding" terimi ile ilgili yayınlara ilişkin 41 kaynak (ör. dergi, kitap) ve 50 belge bulunmaktadır. 221 yazarın eserine ulaşıldı. 2015 yılından bu yana 'postnatal depression', 'postpartum depression', 'symptoms' gibi anahtar kelimelerin kullanım sıklığının artığı gözlemlendi. 2017 yılından sonra 'depression', 'attachment', 'scale', 'version' gibi anahtar kelimelerinin kullanım sıklığının ise düşmüş olduğu gözlemlendi. Ülke karşılaştırmalarında ise yayın ve atıf sayısından ilk üç sırada yer alan ülkeler Amerika Birleşik Devletleri, Japonya ve Almanya idi.
Sonuç: Bu çalışma, anne-bebek bağlanması araştırmalarındaki ilerlemenin son yıllarda arttığını göstermiştir. Araştırmaların öncelikleri ve eğilimlerine ilişkin saptanan veriler gelecekteki akademik arayışlara yardımcı olabilir.
Anahtar Kelimeler: anne- bebek bağlanması, bağlanma, bibliyometrik, postpartum.

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Introduction

Bonding, which begins with the mother-infant relationship, acts as a template for all of the relationships that a person forms throughout his or her life and has the potential to be crucial in each of them[1]. Mother-infant bonding is the existence of a warm, ongoing, and close relationship between a mother and child, and both parties are content and enjoy this situation[2]. Taylor et al.[3] defined bonding as the mother's feelings towards the infant and separating this process from observable behaviours.

After the baby has his/her first secure-insecure attachment experience, this bond will last a lifetime. The child may experience issues with social, mental, and emotional development starting in infancy if secure bonding does not take place[4]. Mother-infant bonding promotes the child's healthy development and has a positive impact on the child's life. Therefore, the mother's response to her child from birth is crucial[2] (2). Children who have poor parent-child relationships are more susceptible to a variety of negative outcomes[5]. For this reason, numerous studies have measured the degree of mother-infant bonding and attempted to determine how it relates to various conditions[6,7].

Bibliometric analysis is a method that has recently been used in academic research to search and analyze vast and dispersed data. While it allows us to show how a field has changed over time, it also allows the literature to be updated with the most recent techniques and approaches in that field[8].

Mother-infant attachment is of great importance in the practice of family medicine, which is the principle of a biopsychosocial approach that starts to follow a person when he/she is still a foetus, continues in every age of his/her life and continues until death. It has been noted that there is no research on mother-infant bonding, which has an impact on a person's entire life, on the evaluation of bibliometric analysis in the literature.

The purpose of this study was to create a resource for information on mother-infant bonding. All documents containing the keywords 'mother-infant bonding' in the academic literature were analysed using the bibliometric method to guide future academic studies.

Method

Keywords that capture the main topics of the paper help indexing in the medical literature. Keywords reflect the region of interest, the modality, and procedure used, and the pathological process studied[9]. The term 'mother-infant bonding' is the keyword that is considered important for this study. The Web of Science (WoS) database was used to analyse bibliographic data between 1994 and 2022 (April) using the keyword 'mother-infant bonding.' The WoS database was chosen for this study as it contains more research data than other online databases.

The bibliometric analysis 'Bibliometric R-package' program was used to conduct data analyses. Graphs, science maps, and all analyses of the data were created by using the Bibliometric R – package[10].

This study was graphically organised and visually supported[11] using the VOSviewer software[12].

Results

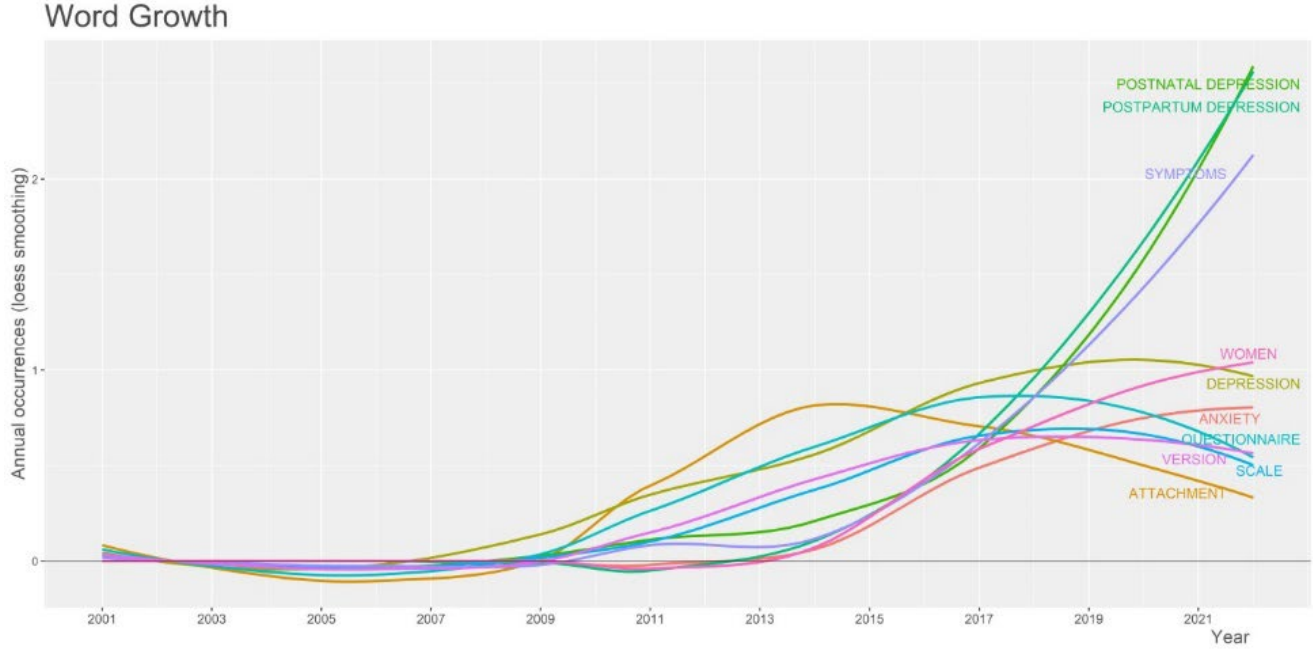
The results of the Web of Science (WoS) online database show that there are 50 documents and 41 resources (such as books and journals) related to publications about the term 'mother-infant bonding' for the years between 1994 and 2022. Forty four of these documents were articles, and 3 were reviews. The works of 221 authors were accessed. The number of studies with multiple authors was determined as 219 (Table 1).

Table 1.*Main statistical information of mother-infant bonding articles in WOS.*

Description	WOS
Timespan	1994:2022
Sources (Journals, Books, etc)	41
Documents	50
Average years from publication	4,77
Average citations per documents	16,98
Average citations per year per doc	2,665
Document types	
Article	41
Article; early access	3
Review	3
Document contents	
Keywords plus (ID)	208
Author's keywords (DE)	152
Authors	
Authors	221
Author appearances	233
Authors of single-authored documents	2
Authors of multi-authored documents	219
Authors collaboration	
Documents per author	0,226
Authors per document	1,79
Co-authors per documents	2,43
Collaboration index	2,23

Evaluation of the data in WoS with the help of bibliometric analysis is shown with a representative figure showing the annual distribution of the keywords used in publications (1994; 2022) by color and the frequency of use by years. It was observed that keywords such as 'postnatal depression', 'postpartum depression', and 'symptoms' were used more frequently from 2015 onwards. It was seen that keywords such as 'depression', 'attachment',' scale', and 'version' were used less frequently after 2017 (Figure 1).

Figure 1. *Annual distribution of keywords used in publications between 1994and 2022*



The total number of keywords used between 1994 and 2022 was 208, and the number of words used by the authors was 152 (Table). The thickness of the lines and links between the keywords show the relationships between the words. In the bibliometric analysis, the most frequently used words by the authors in the abstracts are ‘mother-infant bonding’, ‘postpartum’, ‘postpartum depression’, respectively, as shown in word cloud (Figure 2A). In the bibliometric analysis of the data in WoS, it was seen that the most used keywords were ‘mother-infant bonding’, ‘postpartum’, and ‘postpartum depression’. The relationships between mother-infant bonding terms and other words were observed to be stronger than the others (Figure 2B).

Figure 2. (A) *Word cloud of the authors' most prominent keyword choices in the abstract.*

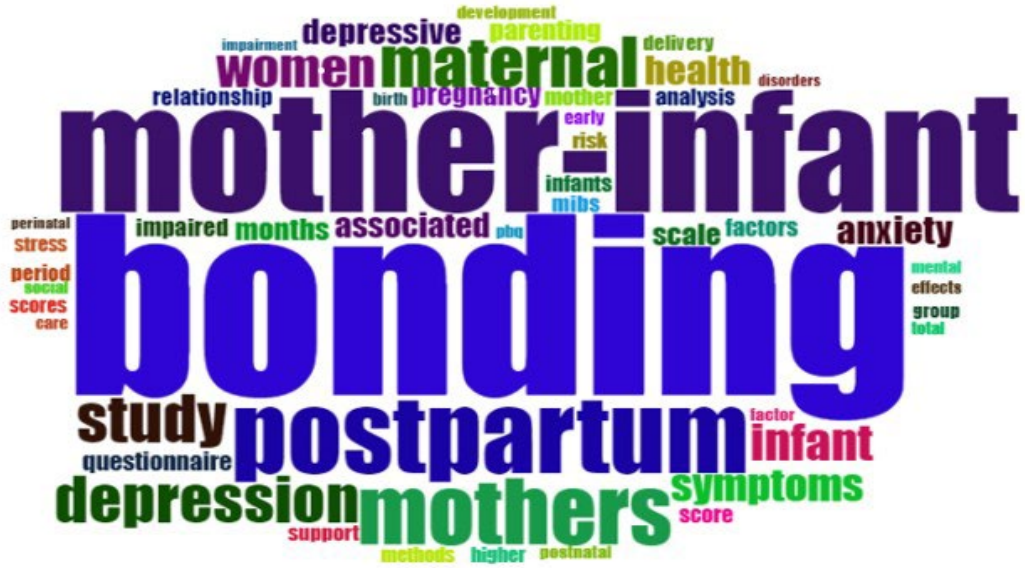
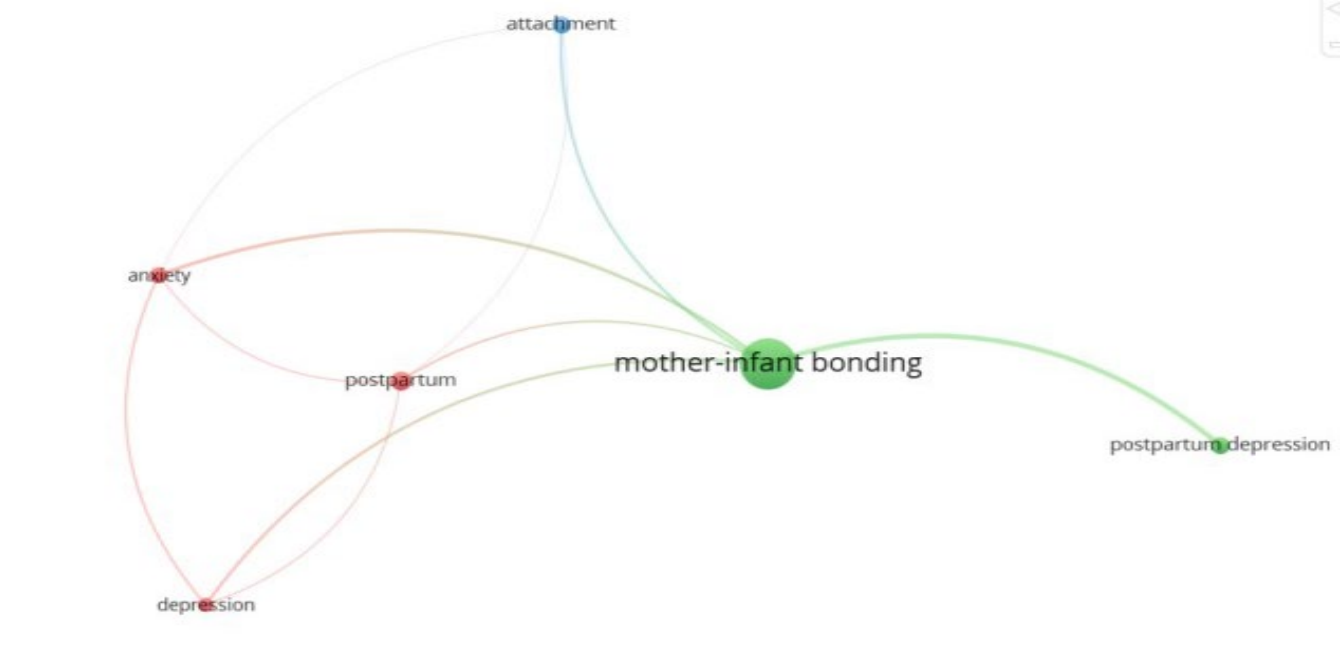


Figure 2. (B) *The most frequently used keywords by the authors between 1994 and 2022, and the relationship between them.*



The diagram is used to show the profiles, relationships, and evolutions of the themes during this time period. Figure 3 shows the shift in the authors' published keywords over time after bibliometric analysis of the data in WoS were performed. The figure shows the change in the use of the keyword of ‘attachment’ in previous years (1994-2019) towards the use of the word ‘bonding’ between 2020and 2022. It can be seen that the keywords ‘mother-infant bonding’ shifted towards the terms ‘postpartum,’ ‘postpartum depression’, and ‘anxiety’ between 2020 and 2022 (Figure 3).

Figure 3. *The change in the keywords used by the authors between 1994and 2022*

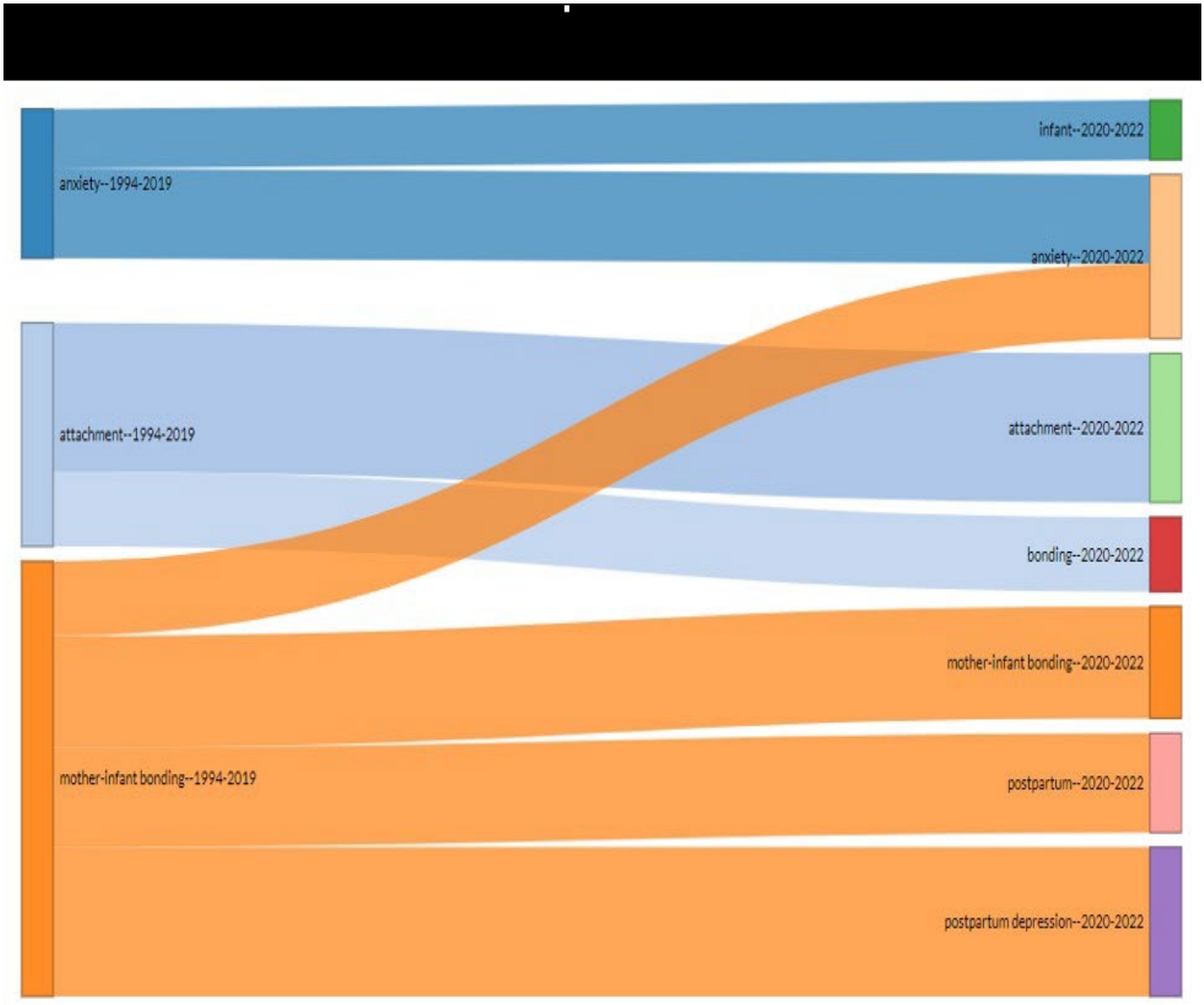
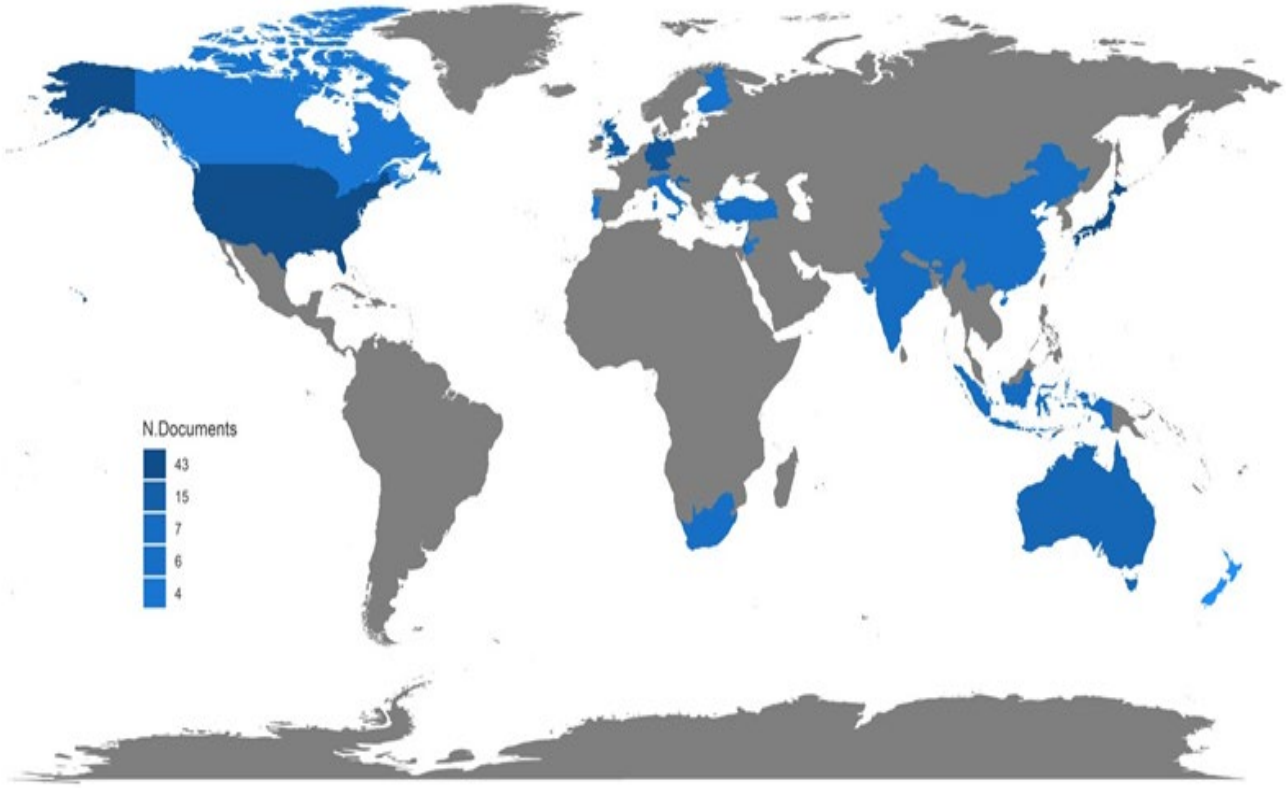


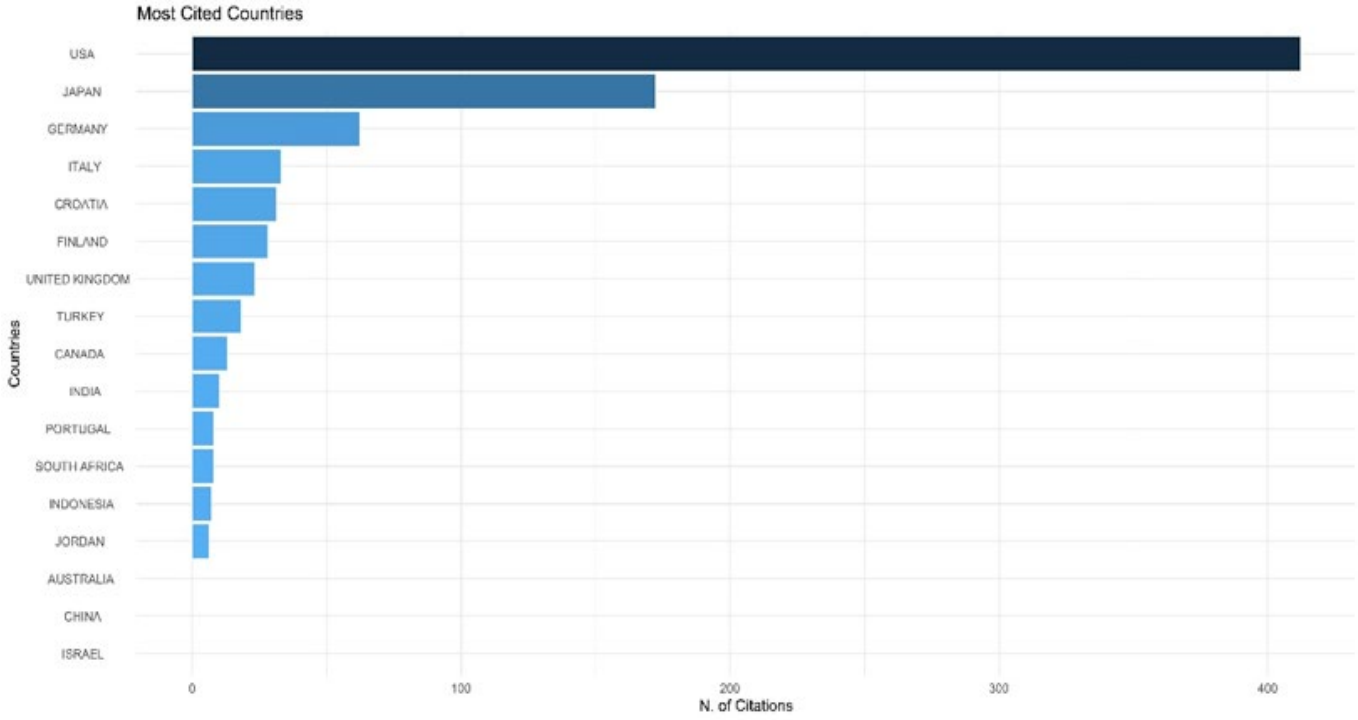
Figure 4 shows country level comparison of the research networks and the number of studies on 'mother-infant bonding'. When we look at the geographical distribution of international publications related to our keywords, it is seen that the studies on 'mother-infant bonding' were produced in many countries on an international scale, although they had different degrees of productivity.

Figure 4. *Geographical distribution of international publications with the keyword 'mother-infant bonding'.*



In terms of the citation ranking of the countries with the keywords 'mother-infant bonding', the top 10 countries were the USA, Japan, Germany, Italy, Croatia, Finland, United Kingdom, Turkey, Canada, and India (Figure 5)

Figure 5.*Ranking of countries with the keyword 'mother-infant bonding' by citation count.*



Discussion

General trends in mother-infant bonding

The current state of research on mother-infant bonding was analysed in this study using the bibliometric method. It was observed that the number of publications about mother-infant bonding increased in the last 5 years. This suggests that this subject is becoming more and more important.

The USA and Japan were the top two countries in terms of the number of publications and citations, suggesting that these countries have a significant influence on the development of mother-child bonding and may be involved in extensive international collaboration. Germany, which was the third country with the highest number of citations and publications, is active in this area as well. Additionally, as it can be seen from the geographical distribution, research on this topic in numerous nations reveals that this problem affects all of humanity, not just one particular society (Figures 4,5).

Author analyses revealed that Numan M's article was the most cited worldwide in mother-infant bonding research[13]. With his various studies[13-15] on this topic, it is clear that he made significant contributions to the management and analysis of maternal bonding research.

Mother-infant bonding interactions

In this study, it was discovered that studies on mother-infant bonding used the terms 'postnatal depression,' 'postpartum depression,' and 'symptoms' more frequently lately. This suggests that mother-infant bonding is mostly likely to be associated with these factors.

Effective and complete mother-infant bonding has been associated with many individual or environmental factors[16,17]. The development of this bond is positively influenced by circumstances such as feeling the fetal movements during pregnancy, listening to music, education, massaging the newborn after birth, receiving support from the family, and having skin-to-skin contact with the baby[18]. On the other hand, the maternal depression, isolation, lack of support, separation from the baby, and unintended pregnancy can all have a negative impact on the mother-infant bonding[19]. In this study, the frequent use of words identified such as 'postpartum depression', 'anxiety', 'postpartum', 'symptoms', and 'factors', which negatively affect mother-infant bonding, shows that the situations affecting bonding have been examined.

Motherhood is accepted as a dynamic transition process due to its impact on the life balance of women[20]. Therefore, it is important to examine the early mother attitudes and feelings that influence her relationship with her child[6]. There are scales to evaluate the mother-infant bonding level. These scales, in the form of questionnaires, are very helpful for determining whether a relationship has broken down during the initial meeting with a mother[21]. There are various tools that evaluate bonding. Examples of some of these tools are *Maternal Attachment Inventory* (MAI), *Mother Infant Attachment Scale* (MIAS), *Mother and Baby Interaction Scale* (MABISC), *Maternal Postnatal Attachment Scale* (MPAS*), Postpartum Bonding Questionnaire* (PBQ), *Mother-to-Infant Bonding Scale (MIBS), Mother-to-Infant Relations and Feelings Scale* (MIRFS), and *Mothers' Object Relations Scales Short Form (*MORS-SR)[20,22]. In this bibliometric study, it was seen that the word scale was included in the word cloud. This suggests that the measurements related to bonding have achieved a considerable progress.

The relationship between postpartum bonding and emotional well-being cannot be ignored[20]. A healthy postpartum also promotes favourable psychological changes in mothers' perceptions. After a traumatic birth, interventions are recommended to help the mother's psychological recovery[23]. It was found in this study that the words 'maternal and health' were also used frequently. The fact that maternal health is on the agenda of studies shows that this issue has not been ignored by the researchers.

Currently,10% of children and teenagers experience mental disorders worldwide [24]. Perinatal complications include parental psychological factors as well as somatic and intrauterine environmental factors for child mental development[25]. Postpartum depression occurs in at least 10% of mothers[26]. The prevalence of the deterioration of the bond between mother and child one year after birth is at least 5%, and this may negatively affect the mother, child, family, and public health. The mother-infant bonding is reported to significantly affect children's long-term development, according to numerous studies. For instance, a healthy maternal bond enhances the health and well-being of infants by affecting the positive cognitive, neuro-behavioural, and socio-emotional development, physical and emotional health, and interpersonal connections of newborns, children, and youth. In contrast, all of these developmental characteristics are adversely impacted by inadequate bonding[27,28]. As a matter of fact, in this bibliometric analysis, it was seen that topics such as 'perinatal', 'stress', 'care', 'social', 'development', 'parenting', and 'birth' were addressed in studies.

The term 'bonding' is synonymous with attachment, but it is also used to describe how parents get emotionally attached to their newborn in the first few hours after birth[6]. In this bibliometric analysis, it was found that the word 'attachment' was used less frequently and the word 'bonding' was used more frequently in studies published after 2017.

Limitations

This study used a bibliometric approach to determine the current status of publications, authors, journals, and keywords that provide an overview of their research on mother-infant bonding. There were some limitations in the study. The dataset was mainly from the WoS database. The reason is that WoS is the most widely used database in scientometrics, and the WoS format can be used in most bibliometric software. The results could have been more comprehensive if other databases such as PubMed or Scopus had been also used. Given that studies on the topic are still ongoing, although suggesting a major advancement in their study on this topic, new publications with low citation counts might also have been ignored because of their low citation counts.

Conclusions

This study shows that research into mother-child bonding has increased considerably in recent years. The countries that contributed most to mother-infant bond research were the USA and Japan. The postpartum period, and particulary postpartum depression, have been popular topics in mother-infant bonding research in recent years.

The family physician is the primary healthcare provider to whom both the mother and the baby frequently consult. Family medicine practice and academic studies should place greater emphasis on mother-infant bonding as it significantly impacts a person's entire life. Data on priorities and trends of studies can help future academic research.

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Association Between Breastfeeding Attitudes and Depression Risk of Mothers in COVID-19 Pandemic
COVID-19 Pandemisinde Annelerin Emzirme Tutumları ve Depresyon Arasındaki İlişki

Zehra Baykal Akmeşe[1]

Abstract

Objective: The aim of this study is to determine the level of breastfeeding attitude and its association with risk of depression among mothers during the COVID-19 pandemic.

Methods: In the cross-sectional analytics study, the minimum number of samples to be reached was calculated (n=327). Data were collected from 393 mothers with the Google survey method. Questionnaire Form, Edinburgh Postpartum Depression Scale (EPDS) and Infant Feeding Attitude Scale (IFAS) forms were used as data collection tools. Variables related to socio-demographic characteristics are shown by number and percentage distribution. The effects of categorical variables, which are thought to affect the mean scores of EPDS and IFAS, were evaluated with t-test and chi-square analysis in independent groups. The relationship between the mean scores of the scale is shown by the correlation coefficient. $p<0.05$ was considered significant.

Results: The mean IFAS score was 65.54±6.74, and the mean EPDS score was 10.70±6.25. IFAS scores of mothers at risk for depression (64.78±6.85) were found to be significantly lower ($p < 0.05$) than mothers who were not at risk for depression.

Conclusion: In the COVID-19 pandemic, it was determined that the breastfeeding attitudes of mothers at risk for depression were lower than those of mothers who were not at risk for depression.

Keywords: COVID-19, breastfeeding attitude, infant feeding attitude, depression.

Özet

Amaç: Bu araştırmanın amacı, COVID-19 pandemisinde annelerin emzirme tutumları ve depresyon arasındaki ilişkinin belirlenmesidir.

Yöntem: Kesitsel analitik tipte tasarlanan araştırmada, ulaşılması gereken en az örneklem sayısı hesaplanmış (n=327), 393 anneden Google anket yöntemi ile veri toplanmıştır. Veri toplama araçları olarak Anket Formu, Edinburgh Postpartum Depresyon Ölçeği (EPDÖ) ve Bebek Beslenmesi Tutum Ölçeği (BBTÖ) formları kullanılmıştır. Sosyo- demografik değişkenler için sayı ve yüzde değerleri kullanılmıştır. EPDÖ ve BBTÖ puan ortalamalarını etkileyebileceği düşünülen kategorik özellikteki değişkenlerin etkisi bağımsız gruplarda t testi, ki kare çözümlemesi ile değerlendirilmiş, ölçek puan ortalamaları arasındaki ilişki korelasyon katsayısı ile gösterilmiştir. $p<0.05$ anlamlı kabul edilmiştir.

Bulgular: BBTÖ puan ortalaması 65.54±6.74, EPDÖ puan ortalaması ise 10.70±6.25 olarak saptanmıştır. Depresyon açısından risk taşıyan annelerin BBTÖ puanları (64.78± 6.85), depresyon riski taşımayan annelere göre anlamlı olarak ($p < 0.05$) daha düşük saptanmıştır.

Sonuç: COVID-19 pandemisinde depresyon açısından risk taşıyan annelerin emzirme tutumlarının, depresyon riski taşımayan annelere göre düşük olduğu saptanmıştır.

Anahtar Kelimeler: COVID-19, emzirme tutumu, bebek beslenmesi tutumu, depresyon.

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Giriş

Depresyon, dünya çapında 350 milyon insanın sağlığını etkilediği tahmin edilen ciddi bir duygu durum bozukluğu olmakla birlikte, doğum sonrası dönemde ise tüm annelerin %10-15'ini etkilediği tahmin edilmektedir.[1,2] Doğum sonrası dönemde hormonal ve fizyolojik değişikliklerin neden olduğu düşünülen, ciddi bir ruh sağlığı sorunu olan depresyonun, görülme sıklığı %7-33 arasında değişmektedir.[1-3] Doğum sonrası depresyonun yaygınlığı ve anne sütüyle besleme uygulamalarına etkisi konusunda yapılan araştırmalarda, psikopatoloji öyküsü, gebelik sırasındaki duygusal bozukluk, kötü evlilik ilişkileri, yetersiz sosyal destek ve stresli yaşam olaylarının doğum sonrası depresyon gelişimi için birincil risk faktörleri olduğu belirtilmektedir.[1,4,5]

Dünya Sağlık Örgütü, yenidoğan sağlığının korunması ve yükseltilmesi için doğum sonrası dönemde ilk altı ay sadece anne sütü ile altıncı aydan sonra ise ek besinlerle birlikte, en az iki yaşına kadar anne sütü ile beslemenin sürdürülmesini önermektedir. Bununla birlikte, pandemi gibi olağan üstü durumlarda mümkün olduğu kadar anne sütü ile besleme çabasının sürdürülmesi ve ilgili önlemlerin alınması gerektiğini vurgulamaktadır.[6] Sağlık Bakanlığı Halk Sağlığı Genel Müdürlüğü ise, yayımladığı bildirgede anne sütünde virüse rastlanılmadığını, annenin bilgilendirilmesi ve el hijyenin sağlanması, tıbbi/cerrahi maske takılması, meme başı temizliğinin yapılması gibi önlemlerin alınmasının ardından, bebeğini anne sütü ile emzirebileceği önerilmiştir.[7] Araştırmalar COVID-19 ile enfekte annelerden doğan bebeklerin mümkünse emzirilmesi gerektiğini belirtmektedir.[8-9] Emzirme yoluyla COVID-19 annelerinden bebeklerine enfeksiyon bulaştırma risklerine ilişkin mevcut kanıtları incelemek amacıyla yapılan bir incelemede, COVID-19 pozitif annelerinden alınan anne sütü test numunelerinde virüsün saptanmadığı, bebeklere COVID-19 teşhisi konulan vaka raporlarında, hastalığın anne sütüyle mi, doğrudan temas yoluyla mı yoksa doğum yoluyla mı bulaştığı konusunda belirsizlik olduğu belirtilmiştir. Yanı sıra viral antikorların, COVID-19 pozitif annelerin anne sütü yoluyla yenidoğana pasif olarak geçebileceği ve çocuğa bağışıklık kazandırabileceği belirtilmiştir.[10] Buna karşılık COVID-19 pandemisinde doğum sonrası dönemde olan kadınların bebeklerine virüsü bulaştırma korkusundan dolayı emzirmeye ilişkin olumlu tutumlarının etkilendiği düşünülmektedir.[11,12] Türkiye'nin güneyinde bir ilin devlet hastanesinde yapılan bir çalışmada, kadınların %90'ının emzirirken endişelendiği saptanmıştır.[13] Tekirdağ'da yapılan bir araştırmada ise, COVID-19 pozitif olan, annelerin %35.3'nün bebeklerini sadece formül mama ile beslemeyi tercih ettikleri, sadece %17.6'sının bebeklerini tek başına anne sütü ile beslediği saptanmıştır.[14] İnanç ve bilgiyi kapsayan emzirme tutumu, kadınların kendi emzirme davranışlarını geliştirirken duygu, düşünce ve davranışlarını ifade etme biçimi olarak tanımlanmaktadır.[15] Çalışmalar, olumlu tutuma sahip olan annelerin emzirme konusunda oldukça bilgili olduğunu ve bebeğini emzirmeyi hedeflediğini ortaya koymuştur.[16-17] Bununla birlikte, stresli ve depresif annelerin emzirmeye yönelik öz tutum ve öz yeterliliklerinin daha düşük olduğu bildirilmiştir.[18,19] Yine sürekli kaygının ve depresyonun annelerin emzirme tutumunu azalttığı belirlenmiştir.[20] Bu nedenle, doğum sonrası dönemde depresyon yaşayan annelerin emzirme eğilimlerinin, öz yeterliliklerinin ve emzirme davranışlarının olumsuz yönde değiştiği belirtilmektedir.[18,21,22]

Tüm dünyayı çok kısa bir süre içinde etkisi altına alan Koronavirüs Hastalığı (COVID-19), doğum sonrası dönemde ki kadınlar için de ciddi bir stresli yaşam olayı olmuştur.[23] Koronavirüs yayılma hızı, şekli, yol açtığı komplikasyonlar ve morbidite oranları nedeniyle ciddi sosyal ve psikososyal zorlukların ortaya çıkmasına neden olmuştur.[24,25] COVID-19'a yakalanma ve bebeklere bulaştırma korkusu ve uygulanan önleme politikaları nedeniyle, annelerin kaygı ve stresi artmış, emzirme oranı etkilenmiştir.[26-28] Doğum sonrası dönemde dezavantajlı grupta olan emziren anneler, doğru ve güvenilir bilgi gereksinimi karşılanmadığında emzirmeyi sonlandırabilme ve doğum sonu depresyon gibi daha ciddi sorunlara yol açabilecek risklerle karşı karşıya kalabilmektedir.[29,30] Birinci basamak sağlık hizmeti sağlayıcılarının, emzirmeyi teşvik etmelerine yardımcı olmak için emzirmeye yönelik tutum ve depresyon durumunun değerlendirmesi ve ilişkili faktörleri dikkate alması çok önemlidir. Bu nedenle, bu araştırma COVID-19 pandemisinde annelerin emzirme tutumları ve depresyon arasındaki ilişkinin belirlenmesi amacıyla yürütülmüştür.

Gereç ve Yöntem

Araştırma Tasarımı

Araştırma, COVID-19 pandemisinde annelerin emzirme tutumları ve depresyon arasındaki ilişkiyi belirlemek amacıyla tasarlanmış kesitsel analitik bir araştırmadır.

Evren ve Örneklem

Bu araştırma, Google-anket formu kullanılarak oluşturulan veri toplama formlarının WhatsApp gruplarında paylaşılması yoluyla yürütülmüştür. Araştırmanın evrenini, Google anket veri toplama yöntemi ile ulaşılan 0-1 yaş arası çocuğu olan anneler oluşturmuştur. Araştırmada en az ulaşılması gereken 0-1 yaş arası çocuğu olan anne sayısı G-Power 1.3.9.7. programı kullanılarak hesaplanmıştır. %95 güven aralığı, Tip 1 hata 0.05 ve etki değeri 0.20 olarak hesaplanan en düşük örnek büyüklüğü 327 anne olarak hesaplanmıştır. Araştırmada veri toplama sürecinde ulaşılan toplam anne sayısı 393'tür.

Araştırmaya dahil edilme kriterleri 0-1 yaş arası çocuğu olan, en az ilkokul mezunu, Türkçe okuma yazma bilen ve araştırmanın amacını okuduktan sonra onaylayıp, formları eksiksiz dolduran kadınlar olarak belirlenmiştir.

Veri Toplama Yöntemi

Araştırmanın verileri 2022 yılının Şubat-Mart-Nisan aylarında olmak üzere üç aylık sürede, Google anket ile soru formlarının linki oluşturulmuş ve WhatsApp aracılığıyla bireysel olarak veya gruplara gönderilerek kartopu yöntemiyle toplanmıştır. Veri toplama formunun ilk bölümünde annelere, araştırmanın amacı, araştırma ile elde edilecek çıktılar, formları doldururken harcayacağı ortalama süre konusunda açıklamada bulunulmuş, onayladıktan sonra formları doldurma aşamasına geçilmesi sağlanmıştır.

Veri Toplama Araçları

Araştırmada Anket formu, Bebek Beslenmesi Tutum Ölçeği ve Edinburgh Postpartum Depresyon Ölçeği kullanılmıştır.

Anket Formu: Anket formu araştırmacı tarafından hazırlanmıştır. Annelerin tanıtıcı özelliklerini (sekiz soru), obstetrik özelliklerini (dört soru) ve COVID-19 hastalık ve aşı öyküsünü (dört soru) belirlemeye yönelik olmak üzere toplam 16 sorudan oluşmaktadır.

Bebek Beslenmesi Tutum Ölçeği (BBTÖ): De La Mora ve Russell (1999) tarafından emzirmeye karşı kadınların tutumlarını değerlendirmek amacıyla geliştirilmiş, Ekşioğlu ve ark. (2007) tarafından Türk toplumuna uyarlama çalışması yapılmıştır.[31,32] Ölçekte anne sütüyle besleme ile ilgili dokuz madde, formül beslenme ile ilgili sekiz madde olmak üzere toplam 17 madde yer almaktadır. Formül beslenme maddeleri ters puanlandırılmaktadır (1=5, 2=4, 4=2, 5=1). Toplam tutum puanı 17 ile (biberonla beslemede pozitif tutum gösteren) 85 puan (emzirmede pozitif tutum gösteren) arasında değişmektedir. Ölçekten alınan yüksek puan emzirmeye yönelik olumlu tutumun olduğunu göstermektedir. Ölçeğin geçerlik güvenirlik çalışmasında iç tutarlılık katsayısı olan Cronbach Alpha değeri 0.71 olarak saptanmış[32], bu araştırmada ise 0.58 olarak saptanmıştır.

Edinburgh Postpartum Depresyon Ölçeği (EPDÖ): Ölçek, postpartum dönemde kadınların depresyon riskini belirlemek amacıyla ilk olarak 1987 yılında Cox ve ark. tarafından geliştirilmiştir.[33] Türkiye'de geçerlilik güvenirlik çalışması 1996 yılında Engindeniz ve ark. tarafından yapılmıştır.[24] Ölçek dörtlü likert tipinde, 0-3 arasında puanlanana on sorudan oluşmaktadır. Ölçekten en yüksek 30 puan alınabilmektedir. Ölçekte, bir, iki ve dördüncü maddeler 0-1-2-3 şeklinde, üç, beş, altı, yedi, sekiz, dokuz ve onuncu maddeler ise ise 3-2-1-0 şeklinde puanlanmaktadır. Ölçekten alınan 0-9 arası puan, depresyon açısından risk taşınmadığını, 10-12 puan, depresyon açısından az da olsa risk taşındığını, 13 puan ve üstü ise depresyon ihtimalinin yüksek olunduğunu göstermektedir. Ölçeğin, geçerlik güvenirlik çalışmasında iç tutarlılık katsayısı olan Cronbach Alpha değeri 0.87 iken[34], bu araştırmada 0.84 olarak saptanmıştır.

Verilerin Analizi

Verilerin analizinde Statistical Package for Social Science (SPSS) Windows 26.0 programı kullanılmıştır. Sosyo-demografik değişkenler, sayı, yüzde ve ortalama kullanılarak belirtilmiştir. Ölçek, puan ortalamalarını etkileyebileceği düşünülen değişkenlerin etkisi bağımsız gruplarda t testi ve ANOVA testi ile değerlendirilmiş, ölçek puan ortalamaları arasındaki ilişki Spearman korelasyon analizi ile incelenmiştir. Sonuçların istatistiksel olarak anlamlılık düzeyi $p<0.05$ olarak kabul edilmiştir.

Bulgular

Annelerin yaş ortalamasının 27.67±5.80 olduğu, %31.8'inin 25-29 yaş grubunda olduğu saptanmıştır. Annelerin %49.3'ünün, eşlerinin ise %52.4'ünün yüksekokul/fakülte veya üzeri mezunu, %42.7'sinin ev kadını, %7.4'ünün eşiyle akraba olduğu, %63.4'ünün eşinin işçi ya da serbest çalışan olduğu son olarak %79.6'sının ise sosyal güvencesinin olduğu belirlenmiştir. Obstetrik özellikler incelendiğinde ilk gebelik yaşı ortalaması 24.31±4.15, gebelik sayısı ve doğum sayısı ortancası 1.00 (1.00-8.00), yaşayan çocuk sayısı ortancası 1.00 (1.00-6.00) olduğu saptanmıştır (Tablo 1).

Tablo 1. *Annelerin Sosyo-demografik ve Obstetrik Özellikleri*

Değişkenler	**Bulgular**
	Ort (SS)
Yaş (yıl)	27.67 (5.80)
İlk gebelik yaşı (yıl)	24.31 (4.15)
	Ortanca (En Düşük-En Yüksek)
Gebelik sayısı	1.00 (1.00-8.00)
Doğum sayısı	1.00 (1.00-8.00)
Yaşayan çocuk sayısı	1.00 (1.00-6.00)
Yaş	**n (%)**
15-19	18 (4.6)
20-24	116 (29.5)
25-29	125 (31.8)
30-34	82 (20.9)
35 ve üzeri	52 (13.2)
Öğrenim durumu	
Ortaöğretim ve altı	91 (23.2)
Lise mezunu	108 (27.5)
Yüksekokul/Fakülte veya üzeri	194 (49.3)
Çalışma durumu	
Ev Kadını	168 (42.7)
İşçi/ Serbest Çalışan	143 (36.4)
Memur	82 (20.9)
Nikah türü	
Resmi nikah	351 (89.3)
Dini nikah	42 (10.7)
Eş ile akrabalık durumu	
Evet	29 (7.4)
Hayır	364 (92.6)
Eş eğitim durumu	
Ortaöğretim ve altı	88 (22.4)
Lise mezunu	99 (25.2)
Yüksekokul/Fakülte ve üzeri	206 (52.4)
Eş çalışma durumu	
Çalışmıyor	24 (6.1)
İşçi/Serbest Çalışan	249 (63.4)
Memur	120 (30.5)
Sosyal güvence durumu	
Evet	313 (79.6)
Hayır	80 (20.4)
Toplam	393 (100)

Ort: Ortalama, SS: Standart Sapma, n:Sayı

Annelerin COVID-19 ve aşı olma özellikleri incelendiğinde, %43.0'ının şimdiye kadar COVID-19 pozitif olduğu, %48.6'sının son 14 gün içinde COVID-19 pozitif biriyle teması olduğu, %20.9'unun COVID-19 aşısı olmadığı saptanmıştır. COVID-19 aşısı olmayanların da %58.5'i aşının içeriğine ve koruyuculuğuna güvenmediği, %29.3'ü emzirdiği, %12.2'si de aşı olmak istemediği için aşı olmamıştır (Tablo 2).

Tablo 2. *Annelerin COVID-19 ve Aşı Olma Özellikleri*

Değişkenler	**Bulgular**
	n (%)
Şimdiye kadar COVID-19 pozitif olma durumu	
Evet	169 (43.0)
Hayır	224 (57.0)
Son 14 gün içinde COVID-19 pozitif teması	
Evet	191 (48.6)
Hayır	202 (51.4)
COVID-19 aşısı olma durumu	
Evet	311 (79.1)
Hayır	82 (20.9)
COVID-19 aşısı olmama nedeni*	
Emziriyorum	24 (29.3)
Aşının içeriğine ve koruyuculuğuna güvenmiyorum	48 (58.5)
Aşı olmak istemiyorum	10 (12.2)
Toplam	393 (100)

*: Sadece COVID-19 aşısı olmayanlar, Ort: Ortalama, SS: Standart Sapma, n:Sayı

Annelerin, BBTÖ ve EPDÖ puan ortalamaları ve ilişkisi Tablo 3'te gösterilmiştir. BBTÖ puan ortalaması 65.54±6.74, EPDÖ puan ortalaması ise 10.70±6.25 olarak saptanmıştır. Annelerin %56.5'inin depresyon riski taşıdığı saptanmıştır. BBTÖ ve EPDÖ puan ortalamaları arasında negatif yönde, düşük düzeyde, anlamlı bir ilişki olduğu saptanmıştır (r=-0.101, p=0.045) (Tablo 3).

Tablo 3. *BBTÖ ve EPDÖ Puan Ortalamaları ve İlişkisi*

Ölçekler	**n (%)**	**Ort. ± SS**	**En Düşük-En Yüksek Puan**	**Ölçek/Alt Boyut En Düşük-En Yüksek Puanı**	**r**	**p**
BBTÖ	393 (100)	65.54±6.74	36.00-81.00	17.00-85.00	-0.101	0.045
EPDÖ	393 (100)	10.70±6.25	00.00-29.00	00.00-30.00		
Depresyon açısından risk taşımıyor *(0-9 puan)*	171 (43.5)	4.97±3.05	00.00-9.00			
Depresyon açısından risk taşıyor *(10 puan ve üzeri)*	222 (56.5)	15.12±4.14	10.00-29.00			
Toplam	**393 (100)**					

Ort: Ortalama, SS: Standart Sapma, n:Sayı, %:Yüzde, r: Spearman korelasyon analizi; p<0.05; BBTÖ: Bebek Beslenmesi Tutum Ölçeği; EPDÖ: Edinburgh Postpartum Depresyon Ölçeği

Tablo 4'te annelerin BBTÖ ve EPDÖ puan ortalamalarını etkilediği düşünülen bazı değişkenler gösterilmiştir. Tabloya göre değişkenlerin BBTÖ ve EPDÖ puan ortalamalarını istatistiksel olarak anlamlı bir şekilde etkilemediği saptanmıştır (Tablo 4).

Tablo 4. *BBTÖ ve EPDÖ Puan Ortalamaları ile Bazı Değişkenlerin Karşılaştırılması*

Değişkenler	**BBTÖ**			**EPDÖ**		
Yaş	**Ort. ± SS**	**F*/t**	**p**	**Ort. ± SS**	**F*/t**	**p**
15-19	65.66±6.09	2.325*	0.056	12.94±5.73	2.105*	0.079
20-24	64.19±7.40			11.76±6.45		
25-29	66.55±6.19			10.02±6.12		
30-34	66.35±6.91			10.06±6.06		
35 ve üzeri	64.82±6.03			10.21±6.31		
Öğrenim durumu						
Ortaöğretim ve altı	64.70±6.22	0.926*	0.397	11.17±5.67	0.745*	0.475
Lise mezunu	65.79±6.23			11.00±6.75		
Yüksekokul/Fakülte ve üzeri	65.80±7.24			10.31±6.23		
Çalışma durumu						
Ev Kadını	65.35±6.26	1.320*	0.268	10.38±6.38	0.424*	0.655
İşçi/Serbest Çalışan	65.16±6.89			10.84±5.99		
Memur	66.60±7.38			11.10±6.46		
Eş ile akrabalık durumu						
Evet	62.79±7.22	-2.296	0.486	11.00±7.40	0.264	0.051
Hayır	65.76±6.66			10.68±6.16		
Eş öğrenim durumu						
Ortaöğretim ve altı	65.26±6.19	2.790*	0.063	11.00±5.62	0.248*	0.780
Lise mezunu	64.34±7.26			10.36±6.57		
Yüksekokul/Fakülte ve üzeri	66.24±6.65			10.74±6.37		
Eş çalışma durumu						
Çalışmıyor	64.87±6.82	1.157*	0.316	12.83±6.28	1.554*	0.213
İşçi/Serbest Çalışan	65.24±6.95			10.48±6.00		
Memur	66.31±6.27			10.74±6.72		
Sosyal güvence durumu						
Evet	65.84±6.63	1.764	0.693	10.40±6.16	-1.881	0.895
Hayır	64.36±7.10			11.87±6.49		
Şimdiye kadar COVID-19 pozitif olma durumu						
Evet	65.41±6.40	-0.339	0.633	10.76±6.07	0.177	0.326
Hayır	65.64±7.00			10.65±6.40		
Son 14 gün içinde COVID-19 pozitif teması						
Evet	65.33±6.36	-0.605	0.277	11.16±5.83	1.412	0.053
Hayır	65.74±7.09			10.27±6.61		
COVID-19 aşısı olma durumu						
Evet	65.40±6.96	-0.812	0.080	10.74±6.37	0.254	0.396
Hayır	66.08±5.86			10.54±5.81		

Ort: Ortalama, SS: Standart Sapma, F*:ANOVA testi, t: Bağımsız gruplarda t testi, $p<0.05$; BBTÖ: Bebek Beslenmesi Tutum Ölçeği; EPDÖ: Edinburgh Postpartum Depresyon Ölçeği

Annelerin BBTÖ ve EPDÖ puan ortalamaları karşılaştırıldığında, depresyon açısından risk taşıyan annelerin BBTÖ puanları (64.78± 6.85), depresyon riski taşımayan annelere göre anlamlı olarak ($p < 0.05$) daha düşük saptanmıştır (Tablo 5).

Tablo 5. *Annelerin BBTÖ ve EPDÖ Puan Ortalamalarının Karşılaştırılması*

Depresyon Riski Durumu (EPDÖ)	**BBTÖ**		
	Ort. ± SS	**t**	**p**
Depresyon açısından risk taşımıyor/0-9 puan (n=171)	66.53 ± 6.49	2.558	0.011
Depresyon açısından risk taşıyor/10 puan ve üzeri (n=222)	64.78± 6.85		

n:Sayı, %:Yüzde, Ort: Ortalama, SS: Standart Sapma, t: Bağımsız gruplarda t testi, BBTÖ: Bebek Beslenmesi Tutum Ölçeği; EPDÖ: Edinburgh Postpartum Depresyon Ölçeği

Tartışma ve Sonuç

COVID-19 salgını, her ülkenin korunma ve baş etmek için mücadele ettiği, 21. yüzyılın en tehlikeli tehditlerinden biri olmuştur.[35] Hastalık Kontrol ve Önleme Merkezi, doğum sonrası dönemde, bunaltı hissi ve karamsarlık açısından zaten risk altında olan annelerin mutlaka emzirmesini önermektedir.[36] Bu araştırmada, annelerin emzirmeye yönelik olumlu tutumlarının olduğu saptanmıştır. Brezilya'nın güneyinde bir devlet hastanesinde, 2018-2020 yılları arasında doğum yapan 547 annenin COVID-19 pandemisinde bebeklerini emzirme durumlarının incelendiği kohort çalışmasında, pandeminin anne sütünden erken ayrılma için bir risk faktörü olduğu, ancak pandemi döneminde ev dışında çalışmak zorunda olmamanın, ilk altı ayda sadece anne sütü ile beslenmeyi koruyucu bir faktör olduğu belirtilmiştir.[37] İngiltere'de yapılan bir araştırmada ise, ilk kez anne olan kadınların %41,8'i sokağa çıkma yasağının emzirme tutumlarına fayda sağladığını belirtmiştir.[38] COVID-19 pandemisi sırasında, Türkiye'nin de aralarında olduğu toplam 12 ülkeye özgü faktörlerin emzirme oranları üzerindeki etkisinin değerlendirildiği bir ileriye dönük kohort çalışmasında, 5612 kadından veriler toplanmıştır. Araştırma sonuçlarına göre, annenin COVID-19 tanısının ve sağlık bakımı ve doğum/doğum sonrası planlarındaki değişikliklerin emzirme oranlarını olumsuz yönde etkilemediğini ortaya koymuştur.[39] COVID-19 pandemisi döneminde 0-6 aylık bebeğini emziren annelerin, emzirme tutumlarının ve etkileyen faktörlerin belirlenmesi amacıyla Türkiye'de yapılan bir çalışmada da, bizim çalışmamıza benzer şekilde annelerin emzirmeye yönelik tutumlarının olumlu olduğu saptanmıştır.[40] Belirtilen çalışmalarda ve bu çalışmada, annelerin emzirme tutumlarının olumlu yönde olması, COVID-19 pandemisinde dünya çapında emzirmeye ilişkin mevcut kanıta dayalı klinik kılavuzların kısa bir süreliğine askıya alınmasının ardından, emzirmenin yararlarının SARS-CoV-2 bulaşma risklerinden daha ağır bastığına ilişkin elde edilen kanıtların hızla paylaşılması ile açıklanabilir.[41,42] Pandemi salgınından kısa bir süre sonra yayımlanan emzirme kılavuzunun, annelerin bilgilerini ve sağlık uygulamalarını etkilemiş olabileceği ve anneler tarafından emzirmenin desteklendiği düşünülmektedir. Bu araştırmada, annelerin eğitim düzeylerinin yüksek, çoğunluğunun çalışıyor olmasının da bu sonuca katkısı olduğu düşünülmektedir. COVID-19 pandemisinde, annelerin depresyon açısından risk altında olduğu bildirilmektedir.[29,30] Türkiye'de 0-12 aylık bebeği olan kadınların, COVID-19 pandemisinde yaşadığı korkunun postpartum depresyon ile ilişkisini incelemek amacıyla yapılan bir çalışmada, annelerin %32,6'sının postpartum depresyon açısından risk grubunda olduğu ve COVID-19 pozitif olma korkusu ne kadar yüksek olursa, depresyon düzeyinin de o kadar yüksek olduğu belirtilmiştir.[43] Türkiye'nin doğusunda yer alan bir ilin, Aile Sağlığı Merkezlerine kayıtlı toplam 211 anne ile yürütülen bir başka araştırmada ise, annelerin %23,2'sinin doğum sonu depresyon açısından risk altında olduğu ve COVID-19 korkusu arttıkça doğum sonu depresyon riskinin arttığı belirtilmiştir.[44] Türkiye'nin İç Anadolu bölgesinde yapılan bir diğer çalışmada ise, SARS-CoV-2 virüsü ile enfekte iken doğum yapan annelerin doğum sonrası depresyon oranı % 53,3 olarak belirtilmiştir. Ayrıca aynı çalışmada, COVID-19 pandemisinde postpartum depresyon olasılığının arttığı bildirilmiştir.[45] Araştırmalardan elde edilen sonuçlar genel olarak COVID-19 pandemisinde annelerin depresyon açısından risk altında olduğunu, ancak oranların farklılık gösterdiğini ortaya koymaktadır. Bu araştırmada da, annelerin depresyon riskinin olduğunu, depresyon riski taşıyan annelerin oranının %56,5 olduğu, bir başka ifadeyle annelerin yarısından fazlasının depresyon riski taşıdığı belirlenmiştir. Araştırmalarda, depresyon riski oranlarının değişkenlik göstermesinin nedenleri olarak, araştırmaların yürütüldüğü birim, veri toplama yöntemi ve örneklem büyüklüğünün farklı olmasından kaynaklandığı düşünülmektedir. Literatür incelendiğinde, Edinburgh Postpartum Depresyon puan ortalaması eşik değerin üzerinde olan annelerin, COVID-19 enfeksiyonunu yeni doğanlarına bulaştırmaktan korktuğu ve anne sütünün diğer enfeksiyonlardan korunmadaki önemi hakkında bilgi sahibi olmadıklarından dolayı depresyon risklerinin yüksek olduğu görülmektedir.[35] COVID-19 pandemi döneminde, yeni doğum yapmış annelerde depresyon ve emzirme ilişkisinin

araştırıldığı, kesitsel bir araştırmada da SARS-CoV-2 pandemisinin, doğum sonrası annelerin, doğum sonrası depresyonu etkilemediği, emzirmenin ise karantina sonrası dönemde, katı karantina düzenlemelerinin olduğu pandeminin erken evrelerine göre anlamlı derecede daha iyi olduğu belirtilmiştir.[46] Postpartum dönemde olan 324 kadınla, postpartum depresyonun emzirme üzerine etkisini saptamak amacıyla yapılan başka bir çalışmada ise, kadınların emzirme başarılarının orta düzeyde olduğu, dörtte birinin depresyonda olduğu ve depresyon ile emzirme arasında negatif bir ilişki olduğu belirlenmiştir.[47] COVID-19 pandemisi sürecinde, annelerin bebek besleme tutumlarını ve bu tutumları etkileyen faktörleri değerlendirmek amacıyla yapılan tanımlayıcı bir diğer çalışmada ise, 0-6 ay arasında bebeği olup emziren 402 annenin bebek besleme tutumlarının yüksek olduğu, depresyon riskinin ise düşük olduğu saptanmıştır.[48] Araştırmalarda, COVID-19 pandemisinde, annelerin emzirme tutumları ve depresyon riski arasındaki ilişki açıkça görülmektedir.[35,46,47,48] Bu araştırmada da, belirtilen araştırmalara benzer şekilde depresyon açısından risk taşıyan annelerin emzirme tutumlarının, depresyon riski taşımayan annelere göre daha düşük olduğu sonucuna varılmıştır. Bu araştırmada, annelerin hemen hemen yarısının şimdiye kadar COVID-19 pozitif ya da son 14 gün içinde COVID-19 pozitif temasının olmasının, çoğunluğunun COVID-19 aşısı olmasının ve emzirme tutumlarının yüksek olmasının depresyon riskinin düşük olmasına katkı sağladığı düşünülmektedir.

Sonuç olarak; COVID-19 pandemisinde depresyon açısından risk taşıyan annelerin emzirme tutumlarının, depresyon riski taşımayan annelere göre düşük olduğu saptanmıştır. COVID-19 salgınında emzirmenin yararlarını kabul ederek, annenin ve yenidoğanın sağlığı izin veriyorsa, risklerin dikkatli bir şekilde tartışılmasından sonra sağlık hizmeti sağlayıcıları tarafından doğrudan emzirmenin veya anne sütünün alınmasının teşvik edilmesi gereklidir. Böylelikle, depresyon riski açısından dezavantajlı olan doğum sonrası dönemde ki kadınların, depresyondan korunmaları ve emzirme tutumlarını olumlu yönde geliştirmeleri için de önemli bir girişimde bulunulmuş olunacaktır.

Yazar Katkı Oranları: Fikir/kavram: ZBA Tasarım: ZBA Veri Toplama: ZBA Veri İşleme: ZBA Analiz/Yorum: ZBA Literatür taraması: ZBA Yazma: ZBA

Çıkar Çatışması Bildirimi: Çıkar çatışması yoktur.

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Quantıtatıve Analysıs Of Famıly Medıcıne Departments And Academıcıans In The 30th Year In Türkiye

Türkiye'de Otuzuncu Yılında Aile Hekimliği Anabilim Dalları Ve Akademik Kadroların Nicel İncelenmesi

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Abstract:

Objective*: The aim of t*his study was to quantitatively examine the number of family medicine departments, lecturers, assistants, and specialists in Türkiye.

Methods: In this cross-sectional descriptive study, tertiary care family medicine clinics and departments in Türkiye were examined. The number of current lecturers in family medicine, the number of assistants and, if any, the number of specialist physicians they trained were investigated. Every family medicine clinic or department in Türkiye was reached via phone, e-mail, or WhatsApp application between March and April 2022, and data related to departments/clinics were collected.

Results*:* In our study, it was determined that there were 105 tertiary care family medicine clinics or departments. When we examined the number of lecturers working in these 105 family medicine clinics in Türkiye, it was found that there were 104 assistant professors, 86 associate professors, and 74 professors. It has been determined that 211 people in Türkiye have completed the associate professorship process from a higher education institution and received the title of "associate professor" in the field of family medicine. It was determined that 93 of 211 people were appointed to the professorship staff. Currently, there are 3727 family medicine residents and 4107 family medicine specialists in Türkiye.

Conclusion*:* Family medicine, which has been recognized as a specialty in medicine in the 30 years since the establishment of the first department in Türkiye seems to have gained a good momentum in its quantitative and qualitative development. On the other hand, it was determined that the number of teaching staff lagged behind the increasing number of assistants and departments. In order that this situation does not cause a decline in the quality of education, it is necessary to lead the training of new academicians.

Key words: Family medicine, Quantitative, Academician

Özet

Amaç: Bu çalışma Türkiye'de bulunan aile hekimliği anabilim dalları, öğretim üyesi, uzmanlık öğrencisi ve uzman sayılarının nicel olarak incelenmesi amacıyla yapılmıştır.

Yöntem: Kesitsel tanımlayıcı tipteki bu çalışmada Türkiye'de bulunan üçüncü basamak aile hekimliği klinikleri ve anabilim dalları incelendi. Aile hekimliğindeki mevcut öğretim üyesi sayısı, asistan sayısı ve varsa yetiştirdikleri uzman hekim sayıları araştırıldı. Türkiye'deki her aile hekimliği kliniği veya anabilim dalına Mart-Nisan 2022 tarihlerinde telefon, e-mail veya WhatsApp uygulaması üzerinden ulaşılarak anabilim dalları /klinikler ile ilgili veriler toplandı.

Bulgular: Araştırmamızda 105 tane üçüncü basamak aile hekimliği kliniği veya anabilim dalının mevcut olduğu tespit edildi. Türkiye'deki bu 105 aile hekimliği kliniğinde çalışan öğretim üyesi sayısını incelediğimizde 104 doktor öğretim üyesi, 86 doçent ve 74 profesör olduğu saptandı. Türkiye'de şu ana kadar 211 kişinin doçentlik sürecini tamamlayarak Yüksek Öğretim Kurulundan aile hekimliği alanında "doçent unvanı" aldığı tespit edildi. 211 kişiden 93'ünün profesörlük kadrosuna atandığı saptandı. Halen Türkiye'de 3727 Aile hekimliği asistanı ve 4107 aile hekimliği uzmanı olduğu saptandı

Sonuç: Türkiye'de ilk anabilim dalının kurulmasından bugüne kadar geçen yaklaşık 30 yıllık zaman zarfında bir tıpta uzmanlık alanı olarak tanınan aile hekimliğinin; nicel ve nitel gelişiminde iyi bir ivme kazandığı görülmektedir. Diğer taraftan artan asistan ve anabilim dalı sayısına göre öğretim elemanı sayısının geride kaldığı saptandı. Bu durumun eğitim kalitesinde gerilemeye neden olmaması için yeni akademisyenlerin yetişmesine öncülük edilmelidir.

Anahtar Kelimeler: Aile hekimliği, Nicel, Akademisyen

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Giriş

Aile hekimliği (AH), kendine özgü eğitim içeriği, araştırması ve klinik uygulaması olan akademik, bilimsel, birinci basamak yönelimli tıp uzmanlık dallarından biridir.[1] Akademik bir disiplin olarak AH, tüm diğer disiplinler gibi esas olarak disipline özgü bilgi temelini oluşturmak ve geliştirmekle uğraşır. AH, birçok klinik disiplinle bilgi paylaşır. Diğer disiplinlerle içerik paylaşımının yanı sıra aile dinamikleri ve kişilerarası ilişkiler, AH bakış açısının oluşmasında temel öneme sahip konulardır. Tüm diğer uzmanlıklar gibi AH uzmanlığı da bakım, sertifikalandırma ve asistan eğitimi programları gibi bazı standartların oluşturulmasıyla uğraşır.[2]

Türkiye'de AH anabilim dalları, Yüksek Öğretim Kurulunun (YÖK) merkezi kararının etkisiyle ya da aile hekimlerinin bireysel girişimleriyle kurulmuştur.[3] Türkiye'de AH ilk olarak 1983 yılında tababet uzmanlık tüzüğünde yer almıştır. İlk AH anabilim dalı 1984 yılında Gazi Üniversitesi Tıp Fakültesinde, Çocuk Sağlığı ve Hastalıkları Uzmanı olan Prof. Dr. Hikmet Pekcan tarafından kurulmuştur. İlk AH uzmanlık eğitimi 1985 yılında İstanbul, Ankara ve İzmir'deki eğitim ve araştırma hastanelerinde (EAH) başlamıştır. Yüksek Öğretim Kurulu 16 Temmuz 1993 tarih ve 12547 sayılı kararı ile tıp fakültelerinde AH anabilim dallarının kurulmasına karar vermiştir. Bu kararın ardından ilk AH anabilim dalı 17 Eylül 1993'te Trakya Üniversitesi Tıp Fakültesinde kurulmuştur. Eylül 1993 Tıpta Uzmanlık Sınavında (TUS) Trakya Üniversitesi Tıp Fakültesinde Sağlık Bakanlığı adına 10 aile hekimliği asistan kadrosu açılmıştır.[4] İlk yıllarda fakülte yönetimlerinden ve diğer tıp dallarındaki öğretim üyelerinden kaynaklanan bazı sıkıntılar yaşamış olsa da AH yeni bir bilim dalı olarak genellikle benimsenmiş, kısa bir sürede akademideki yerini ve etkinliğini kanıtlamıştır. Akademik birimlerin kurulması ve gelişmesi, aile hekimliğinin ülkemizde tam olarak tanınmasına ve daha ileri taşınmasına önemli katkılarda bulunmuştur.[3]

Bir tıp disiplininin üç önemli sac ayağından birincisi; "anabilim dalının" kurulmuş olmasıdır. İkincisi; "bilimsel hakemli bir derginin" varlığı ve üçüncüsü ise bir sivil toplum kuruluşunun yani bir "derneğinin" olmasıdır. Türkiye'de YÖK kararı ile ilk AH anabilim dalının kurulduğu 1993 yılından bu güne otuz yıl geçmiştir. Topallı'nın[5] yaptığı araştırmaya göre onuncu yılda Türkiye'de sadece 906 aile hekimliği uzmanı (AHU) bulunmaktadır ve bunların çoğu üç büyük şehirde toplanmıştır. Başak ve ark'nın[3] 2005 yılında yaptıkları çalışmada Türkiye'de 35 AH anabilim dalının var olduğu saptanmışken, yirminci yılda yapılan araştırmada Türkiye'deki AH anabilim dalı sayısının 63'e çıktığı görülmüştür.[6] Ülkemizde AH gelişimi ile ilgili yapılan kesitsel çalışmalar günümüze ışık tutmaktadır. Türkiye'de aile hekimliğinin otuzuncu yılına girdiği bu günlerde, ülkemizdeki AH anabilim dalları ve buralarda çalışan aile hekimliği akademisyenlerine ilişkin güncel durumun değerlendirilmesinin geleceğe ışık tutacağını düşünmekteyiz. Dolayısıyla bu çalışma Türkiye'de otuzuncu yılında AH anabilim dalı, öğretim üyesi, asistan ve uzman sayılarıyla akademik uygulama birimlerinin nicel olarak incelenmesi amacıyla yapılmıştır.

Yöntem

Kesitsel tanımlayıcı tipteki bu çalışmada Türkiye'de bulunan üçüncü basamak AH klinikleri ve anabilim dalları incelendi. Anabilim dalı ve kliniklerdeki mevcut öğretim üyesi, asistan ve varsa uzmanlık eğitimini tamamlayan uzman hekim sayıları araştırıldı. Bunun için anabilim dallarının adının, mevcut öğretim üyesi, asistan ve mezun ettiği uzman sayılarının kaydedileceği bir form hazırlandı. Öncelikle ilgili anabilim dalı başkanı veya eğitim sorumlusuna ulaşılması, anabilim dalı başkanına ulaşılamadığı durumda ilgili klinikte çalışan bir akademisyene ulaşılarak verilerin toplanması hedeflendi. Türkiye'deki her AH kliniği veya anabilim dalına Mart-Nisan 2022 tarihlerinde telefon, eposta veya *'WhatsApp'* uygulaması üzerinden ulaşılarak anabilim dalları / klinikler ile ilgili veriler toplandı. Ancak makalenin yayına hazırlandığı 1 Şubat 2023 itibari ile yeni açılmış, asistan ve uzmanı olmayan, ancak öğretim üyesine sahip anabilim dalları da çalışmaya dahil edildi. Ayrıca birimlere bağlı eğitim aile sağlığı merkezlerine ilişkin bilgiler de eklendi. Böylece 105 anabilim dalı veya AH kliniğinin %95'ine birebir ulaşıldı. Geri kalanların ve birebir ulaşılamayanların verileri ise ilgili kliniklerin *'web'* sayfalarından toplandı. Sağlık Bakanlığı Tıpta Uzmanlık Kurulunun (TUK) Yetkilendirilmiş Uzmanlık Eğitimi Programları (YUEP) listesinden resmi olarak AH "Eğitim Kliniği" onayı almış kliniklerin listesine ulaşıldı. Aile hekimliği TUS kontenjanlarına ise geriye dönük olarak ÖSYM'nin resmî *'web'* sayfasından ulaşıldı.[7] Yıllara göre verilen TUS kontenjanlarında ÖSYM'nin ilgili yılda açmış olduğu resmi kontenjan sayıları esas alındı. Elde edilen bilgiler SPSS 21.0 programı ile analiz edildi. Verilerin analizinde tanımlayıcı istatistikler kullanıldı.

Bulgular

Çalışma sonuçlarımıza göre ülkemizde 2022 yılı itibarıyla 105 aile hekimliği akademik birimi bulunmaktaydı. Bunların 29'u Sağlık Bilimleri Üniversitesine (SBÜ) bağlı sağlık uygulama ve araştırma merkezleri/eğitim ve araştırma hastanelerindeki AH klinikleri, 76'sı diğer üniversitelerdeki AH anabilim dalları idi. Anabilim dallarından 62'si ve kliniklerden 28'i Sağlık Bakanlığı Tıpta Uzmanlık Kurulu'ndan eğitim kliniği onayı almıştı (toplam 90 akademik birim). Üniversitelerdeki anabilim dallarından 15'i, uygulama ve eğitim etkinliklerini Sağlık Bakanlığı eğitim ve araştırma hastanelerinde sürdürmekteydi. Tıpta Uzmanlık Kurulundan eğitim kliniği onayı almış AH anabilim dalları ve AH klinikleri Tablo 1 ve 2'de, henüz Tıpta Uzmanlık Kurulundan eğitim kliniği onayı almamış AH anabilim dalları ve AH klinikleri Tablo 3'te gösterilmiştir.

Tablo 1. *Tıpta Uzmanlık Kurulundan eğitim kliniği onayı almış üniversitelerin aile hekimliği anabilim dallarındaki öğretim üyesi, uzmanlık öğrencisi ve mezun olmuş uzmanların sayıları*

No	AİLE HEKİMLİĞİ ANABİLİM DALI / KLİNİĞİ	Prof.	Doç.	Dr. Öğr. Üyesi	Asistan / SAHU	MEZUN AHU / SAHU
1	**Acıbadem** M. Ali Aydınlar Ü. Atakent Hastanesi	1	-	3	-	0
2	**Afyonkarahisar** SBÜ SUAM	1	-	2	9/13	8
3	**Akdeniz** ÜTF SUAM	-	1	1	40/5	59
4	**Ankara** ÜTF SUAM	1	1	3	30/8	55
5	**Atatürk** ÜTF SUAM	1	1	3	45/15	45
6	**Aydın** Adnan Menderes ÜTF SUAM	3	-	1	48	78
7	**Başkent** ÜTF Ankara Hastanesi	3	3	-	20	40
8	**Bezmialem** Vakıf ÜTF SUAM	-	1	-	3/18	4
9	**Bursa** Uludağ ÜTF SUAM	2	-	1	23/10	32
10	**Çanakkale** Onsekiz Mart ÜTF SUAM	1	-	2	17/5	27
11	**Çukurova** ÜTF SUAM	3	2	2	29/7	101
12	**Dicle** ÜTF SUAM	1	-	3	21/18	60
13	**Dokuz** Eylül ÜTF SUAM	4	1	2	104	103
14	**Düzce** ÜTF SUAM	-	1	3	25	24
15	**Erciyes** ÜTF SUAM	2	1	-	44	39
16	**Eskişehir** Osmangazi ÜTF SUAM	2	1	-	43/15	57
17	**Fırat** ÜTF SUAM	-	1	-	9/6	3
18	**Gaziantep** ÜTF SUAM	-	2	-	16	1
19	**Hacettepe** ÜTF SUAM	-	3	-	34/5	16
20	**Harran** ÜTF SUAM	-	1	1	18/10	24
21	**Hatay** Mustafa Kemal ÜTF SUAM	2	1	-	15/14	26
22	**İnönü** ÜTF SUAM	-	3	-	25/16	31
23	İstanbul Medeniyet ÜTF **Göztepe** Prof. Dr. Süleyman Yalçın ŞH	1	1	-	62	70
24	İstanbul **Okan** ÜTF Hastanesi	1	-	-	-	0
25	İstanbul Ü **Cerrahpaşa** TF Cerrahpaşa SUAM	1	2	-	6 /3	9
26	İstanbul Ü **İstanbul** TF Çapa SUAM	-	1	-	8	20
27	**Medipol** ÜTF Medipol Üniversitesi Hastanesi	1	-	3	-	-
28	**Kafkas** ÜTF SUAM	1	-	-	24/6	6
29	**Kahramanmaraş** Sütçü İmam ÜTF SUAM	-	1	1	32/11	40
30	**Karadeniz** Teknik ÜTF SUAM	1	1	1	19/4	24
31	**Kocaeli** ÜTF SUAM	1	-	-	67/14	60
32	**Maltepe** ÜTF Hastanesi	-	-	3	6	0
33	**Manisa** Celal Bayar ÜTF SUAM	-	2	-	9/4	10
34	**Mersin** ÜTF SUAM	1	-	1	8/12	16
35	Necmettin **Erbakan** Ü. Meram TF SUAM	3	-	2	42/11	45
36	**Ondokuz** Mayıs ÜTF SUAM	2	1	2	74/1	75
37	**Pamukkale** ÜTF SUAM	2	1	-	44/15	31
38	**Selçuk** ÜTF SUAM	1	1	1	32	34
39	**Sivas** Cumhuriyet ÜTF SUAM	1	1	1	47/14	47
40	**Süleyman** Demirel ÜTF SUAM	-	1	1	17/9	17
41	**Tekirdağ** Namık Kemal ÜTF SUAM	-	-	2	-	5
42	**Tokat** Gaziosmanpaşa ÜTF SUAM	-	1	4	30/8	12
43	**Trakya** ÜTF SUAM	4	-	1	107/7	121
44	**Van** Yüzüncü Yıl Ü. Dursun Odabaş Tıp Merkezi	1	-	1	23	-
45	**Zonguldak** Bülent Ecevit ÜTF SUAM	3	-	1	41/8	34
46	**Yozgat** Bozok **ÜTF** SUAM	-	-	1	-	-
47	**İzmir** Demokrasi ÜTF **Buca Seyfi Demirsoy** EAH*	-	1	-	-	-
	TOPLAM	**52**	**39**	**53**	**1316/292**	**1509**

AHU: Aile hekimliği uzmanı, SAHU: Sözleşmeli aile hekimliği uzmanı, SBÜ: Sağlık Bilimleri Üniversitesi, SUAM: Sağlık Uygulama ve Araştırma Merkezi, ÜTF: Üniversitesi Tıp Fakültesi, TF: Tıp Fakültesi, ŞH: Şehir Hastanesi, EAH: Eğitim ve Araştırma Hastanesi

Tablo 2. *Tıpta Uzmanlık Kurulundan eğitim kliniği onayı almış Sağlık Bilimleri Üniversitesine bağlı sağlık uygulama ve araştırma merkezleri/eğitim ve araştırma hastaneleri aile hekimliği kliniklerindeki öğretim üyesi, uzmanlık öğrencisi ve mezun olmuş uzmanların sayıları*

No	AİLE HEKİMLİĞİ ANABİLİM DALI / KLİNİĞİ	Prof.	Doç.	Dr. Öğr. Üyesi	Asistan / SAHU	MEZUN AHU / SAHU
1	Kütahya SBÜ **Kütahya Evliya Çelebi** EAH	-	1	2	16/9	8
2	SBÜ Gülhane TF **Ankara** EAH	1	1	1	124	1000
3	SBÜ Gülhane TF **Ankara** ŞH	1	4	1	135/23	53/24
4	SBÜ Gülhane TF **Dışkapı Yıldırım Beyazıt** EAH	2	-	1	69/22	110
5	SBÜ Gülhane TF **Gülhane** EAH	1	2	-	84/7	22
6	SBÜ Gülhane TF **Keçiören** EAH	-	1	-	41/13	-
7	SBÜ Hamidiye TF **Antalya** EAH	-	2	2	33/20	42
8	SBÜ Hamidiye TF **Bağcılar** EAH*	-	1	-	-	-
9	SBÜ Hamidiye TF **Bakırköy Dr. Sadi Konuk** EAH*	-	-	-	-	-
10	SBÜ Hamidiye TF **Başakşehir Çam ve Sakura** ŞH	-	1	-	51	0
11	SBÜ Hamidiye TF **Bursa** Yüksek İhtisas EAH	-	1	1	24	48
12	SBÜ Hamidiye TF **Fatih Sultan Mehmet** EAH	1	-	-	43/30	13
13	SBÜ Hamidiye TF **Gaziosmanpaşa** EAH*	-	-	-	-	-
14	SBÜ Hamidiye TF **Haseki** EAH	1	-	-	55	99
15	SBÜ Hamidiye TF **Haydarpaşa Numune** EAH	-	3	1	68/23	450
16	SBÜ Hamidiye TF **İstanbul** EAH*	-	-	-	-	-
17	SBÜ Hamidiye TF **Konya Beyhekim** EAH	-	1	-	-	0
18	SBÜ Hamidiye TF **Konya** ŞH	-	1	1	80/19	7
19	SBÜ Hamidiye TF **Prof. Dr. Cemil Taşçıoğlu** ŞH	1	-	-	64/19	-
20	SBÜ Hamidiye TF **Şişli Hamidiye Etfal** EAH	-	1	2	74/14	109
21	SBÜ Hamidiye TF **Ümraniye** EAH	-	1	1	58	60/ 6
22	SBÜ Hamidiye TF **Kartal Dr. Lütfi Kırdar** ŞH	-	2	1	84	350
23	SBÜ **Adana** TF **Adana** Şehir Hastanesi	-	2	2	85/35	-
24	SBÜ **Trabzon** TF **Trabzon Kanuni** EAH*	-	-	3	29	-
25	SBÜ **İzmir** TF **Tepecik** EAH	1	6	-	104/2	
26	SBÜ **İzmir** TF **Bozyaka** EAH	-	1	3	37/14	101/8
27	**Ankara** Yıldırım Beyazıt ÜTF **Yenimahalle** EAH	-	2	-	54	-
28	**Bolu** Abant İzzet Baysal ÜTF **İzzet Baysal** EAH	-	2	1	22/6	1
29	**Erzincan** Binali Yıldırım ÜTF **Mengücek Gazi** EAH	-	-	1	8/6	0
30	**Giresun** ÜTF **Prof. Dr. A. İlhan Özdemir** EAH	-	-	1	11/8	0
31	**Hitit** ÜTF **Çorum Erol Olçok** EAH	1	1	1	30	4
32	**İzmir** Katip Çelebi ÜTF **İzmir Atatürk** EAH	1	1	1	83/3	-
33	**Karabük** ÜTF **Karabük** EAH	1	2	2	30/7	9
34	**Marmara** ÜTF **Pendik** EAH	4	1	2	60/9	84
35	**Muğla** Sıtkı Koçman ÜTF **Muğla** EAH	1	-	1	32/4	4
36	**Ordu** ÜTF **Ordu** EAH	1	-	1	33/12	7
37	**Recep Tayyip Erdoğan** ÜTF **Rize** EAH	-	1	1	15	3
38	**Sakarya** ÜTF **Sakarya** EAH*	-	-	1	1	-
39	**Samsun** ÜTF **Samsun** EAH	-	3	-	43/21	12
40	**Uşak** ÜTF **Uşak** EAH*	-	-	1	3	-
41	SBÜ **Diyarbakır Gazi Yaşargil** EAH	-	1	-	-	-
42	SBÜ **İstanbul Kanuni Sultan Süleyman** EAH*	-	-	-	-	-
43	SBÜ **Kayseri** TF **Kayseri** ŞH	-	-	1	-	-
	TOPLAM	**18**	**46**	**37**	**1783/326**	**2596**

*Bu kliniklerin bilgilerine hastanelerin resmi web sayfasından ulaşılmıştır. Bunların dışındaki bütün kliniklerle birebir iletişim kurularak veriler toplanmıştır.

AHU: Aile hekimliği uzmanı, SAHU: Sözleşmeli aile hekimliği uzmanı, SBÜ: Sağlık Bilimleri Üniversitesi, EAH: Eğitim ve Araştırma Hastanesi, TF: Tıp Fakültesi, ŞH: Şehir Hastanesi, ÜTF: Üniversitesi Tıp Fakültesi

Tablo 3. *Tıpta Uzmanlık Kurulundan henüz eğitim kliniği onayı almamış aile hekimliği anabilim dalları/klinikleri"*

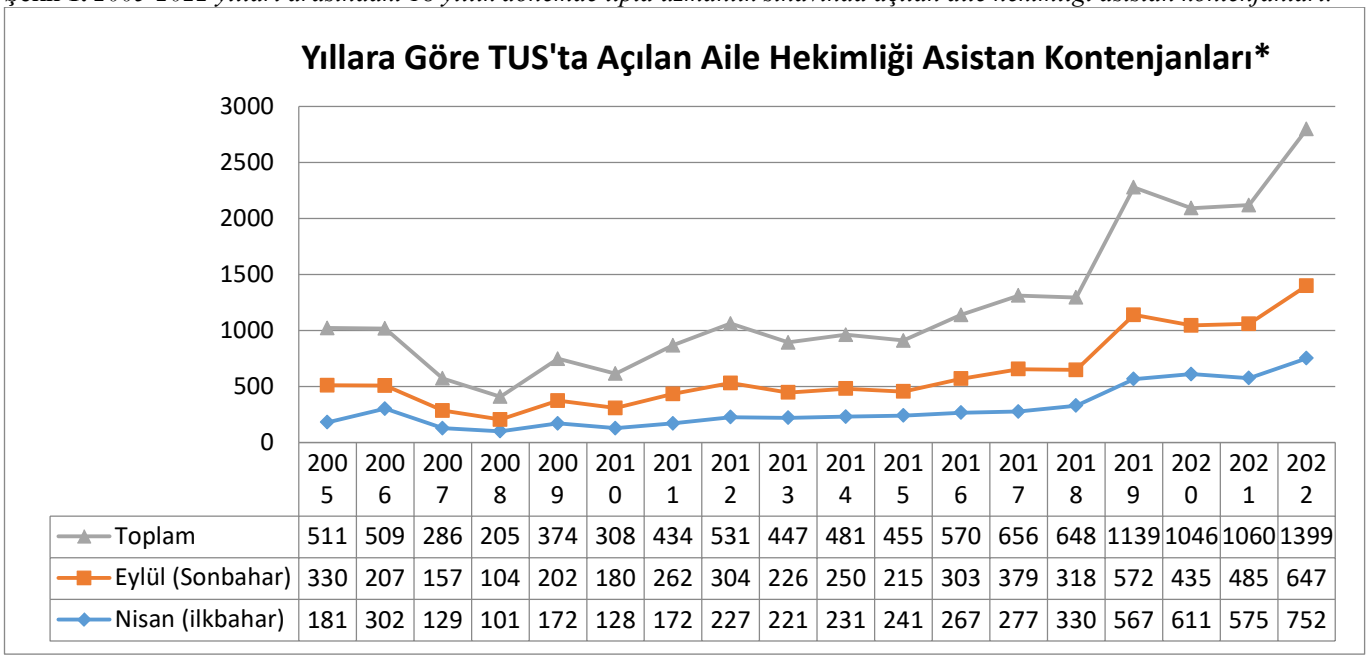
No	AİLE HEKİMLİĞİ ANABİLİM DALI / KLİNİĞİ	Prof.	Doç.	Dr. Öğr. Üyesi	Asistan / SAHU	MEZUN AHU / SAHU
1	**Yeditepe** ÜTF Yeditepe Hastanesi	2	-	-	-	-
2	**İstinye** ÜTF Bahçeşehir SUAM/Liv Hospital	1	-	1	-	-
3	**Demiroğlu Bilim** ÜTF Florence Nightingale Hastanesi*	-	-	1	-	-
4	**Üsküdar** ÜTF NPİSTANBUL Beyin Hastanesi*	-	-	1	-	-
5	SBÜ **Sancaktepe** Şehit Prof. Dr. İlhan Varank EAH*	-	-	-	-	-
6	**Niğde** Ömer Halisdemir ÜTF **Ömer Halisdemir** EAH	-	-	1	-	-
7	**Kırşehir** Ahi Evran ÜTF **Kırşehir** EAH	-	-	3	-	-
8	**Alanya** Alaattin Keykubat ÜTF **Alanya** EAH	-	-	1	-	-
9	**Bandırma** Onyedi Eylül ÜTF **Bandırma** EAH	-	-	1	-	-
10	**Amasya** ÜTF Sabuncuoğlu Şerefedddin EAH	-	-	1	-	-
11	**Ağrı** İbrahim Çeçen ÜTF Ağrı EAH	-	-	1	-	-
12	**Siirt** ÜTF Siirt EAH	**1**	-	1	-	-
13	**Aksaray** ÜTF **Aksaray** EAH	-	-	1	-	-
14	**Konya** Karatay ÜTF **Konya Numune** Hastanesi	-	1	-	-	-
15	**Adıyaman** ÜTF EAH	-	-	1	2/8	2
	TOPLAM	**4**	**1**	**14**	**2/8**	**2**
	ANA TOPLAM (Tablo 1-2-3)	**74**	**86**	**104**	**3101/626**	**4107****

*Birebir ulaşılamayan ve verileri web sayfasından alınan anabilim dalları / klinikler

**Bazı anabilim dalları, özellikle Türkiye ilk açılanlar net mezun sayılarının kayıtlarına ulaşamadığını bildirip ulaşabildikleri asgari ve tahmini rakam vermişlerdir.

AHU: Aile hekimliği uzmanı, SAHU: Sözleşmeli aile hekimliği uzmanı, ÜTF: Üniversitesi Tıp Fakültesi
SUAM: Sağlık Uygulama ve Araştırma Merkezi, EAH: Eğitim ve Araştırma Hastanesi

Şekil 1. *2005-2022 yılları arasındaki 18 yıllık dönemde tıpta uzmanlık sınavında açılan aile hekimliği asistan kontenjanları.*



*2005 yılı öncesi verilere ulaşılamamıştır.

TUS: Tıpta uzmanlık sınavı

Tablo 4. *Eğitim aile sağlığı merkezi bulunan aile hekimliği akademik birimleri ve sayıları.*

NO	KLİNİK ADI	ASM Sayısı	AHB sayısı
1	SBÜ Hamidiye TF **Kartal Dr. Lütfi Kırdar** ŞH	3	10
2	**Eskişehir** Osmangazi ÜTF SUAM	1	2
3	SBÜ Hamidiye TF **Ümraniye** EAH	1	4
4	**Ordu** ÜTF **Ordu** EAH	1	2
5	SBÜ Hamidiye TF **Şişli Hamidiye Etfal** EAH	3	9
6	SBÜ Hamidiye TF **Başakşehir Çam ve Sakura** ŞH	1	3
7	SBÜ Hamidiye TF **Konya** ŞH	1	3
8	SBÜ Gülhane TF **Ankara** ŞH	1	6
9	SBÜ Hamidiye TF **Bursa** Yüksek İhtisas EAH	2	7
10	**Marmara** ÜTF **Pendik** EAH	2	6
11	**Hacettepe** ÜTF SUAM	1	1
12	SBÜ Hamidiye TF **Haydarpaşa Numune** EAH	2	5
13	SBÜ Hamidiye TF **Haseki** EAH	2	6
14	**Trakya** ÜTF SUAM	1	3
15	**Muğla** Sıtkı Koçman ÜTF **Muğla** EAH	2	4
16	**Tekirdağ** Namık Kemal ÜTF SUAM	1	2
17	**Bursa** Uludağ ÜTF SUAM	1	3
18	**Giresun** ÜTF **Prof. Dr. A. İlhan Özdemir** EAH	1	1
19	SBÜ Hamidiye TF **Prof. Dr. Cemil Taşçıoğlu** ŞH	3	8
20	**Ondokuz** Mayıs ÜTF SUAM	2	4
21	**Samsun** ÜTF **Samsun** EAH	1	3
22	SBÜ Gülhane TF **Ankara** EAH	1	3
23	SBÜ **İzmir** TF **Tepecik** EAH	2	4
24	**Dokuz** Eylül ÜTF SUAM	6	11
25	**Erzincan** Binali Yıldırım ÜTF **Mengücek Gazi** EAH	1	1
26	**Kafkas** ÜTF SUAM	1	1
27	**Atatürk** ÜTF SUAM	2	6
28	**Sakarya** ÜTF **Sakarya** EAH	1	4
29	**Tokat** Gaziosmanpaşa ÜTF SUAM	1	2
30	**İzmir** Katip Çelebi ÜTF **İzmir Atatürk** EAH	4	12
31	**Aydın** Adnan Menderes ÜTF SUAM	1	2
32	**Çukurova** ÜTF SUAM	1	3
	TOPLAM	**54**	**141**

SBÜ: Sağlık Bilimleri Üniversitesi, ASM: Aile sağlığı merkezi, AHB: Aile hekimliği birimi, TF: Tıp Fakültesi, ŞH: Şehir Hastanesi, ÜTF: Üniversitesi Tıp Fakültesi, SUAM: Sağlık Uygulama ve Araştırma Merkezi, EAH: Eğitim ve Araştırma Hastanesi

Türkiye'de 211 aile hekimliği uzmanının Üniversitelerarası Kurul doçentlik sürecini tamamlayarak AH alanında "doçent unvanı" aldığı, bunlardan 93'ünün profesörlük kadrosuna atandığı saptandı. Aile hekimliği akademik birimlerinde 104 doktor öğretim üyesi, 86 doçent ve 74 profesör olmak üzere toplam 264 öğretim üyesi/eğitici görev yapmaktaydı. Aile hekimliği uzmanlık eğitimi programlarında 3101 ve sözleşmeli aile hekimleri uzmanlık (SAHU) eğitimi programlarında 626 olmak üzere toplam 3727 AH uzmanlık öğrencisi halen eğitim almaktaydı. Aile hekimliği akademik birimlerinin şimdiye kadar mezun ettiği uzman sayısı ise 4107 idi. Öğretim üyesi/eğitici, uzmanlık öğrencisi ve mezun uzman sayılarının akademik birimlere göre dağılımı Tablo 1-3'te verilmiştir. Sağlık Bakanlığı Tıpta Uzmanlık Kurulundan eğitim kliniği onayı almış 90 akademik birimden 32'sinde toplam 54 eğitim aile sağlığı merkezindeki (EASM) 144 aile hekimliği biriminde (AHB) aile hekimliği uygulama eğitimi (saha eğitimi) yapılmakta idi (Tablo 4). Yaptığımız araştırmada 2005 yılından 2022 yılına kadar TUS'ta toplam 11060 AH asistan kadrosu açıldığı belirlendi. Bunlardan 4644'ünün 2019-2022 yıllarındaki son sekiz TUS sınavında açıldığı saptandı (Şekil 1).

Tartışma

Yeni bir disiplinin temsilcisi olmanın heyecan ve umudunu taşıyan AH akademisyenleri bilgi alanı örtüşen diğer bazı disiplinlerle ortak konulardaki bilgileri öğrencilerine aktarırken bu disiplinlerin "altında" ya da "gözetiminde" değil ama onları da "içeren" farklı bir yaklaşımları olduğunu vurgulamaktadırlar.[8] Türkiye'de ilk AH anabilim dalının kurulmasından bu güne kadar geçen yaklaşık 30 yıllık zaman zarfında aile hekimliğinin Avrupa'daki çoğu ülkeyle kıyaslandığında, nicel ve nitel gelişiminde iyi bir ivme kazandığı görülmektedir.[9]

Araştırmamızda halen ülkemizde 3101 tam zamanlı AH asistanı, 626 SAHU asistanı ve 4107 AHU olduğu saptanmıştır. Topallı'nın 2003 yılında yaptığı kesitsel araştırmada Türkiye'de AHU ve AH asistanı toplam hekim sayısı 1159 kişi olarak tespit edilmiştir. Bunların 907'si AHU ve 154'ü asistan iken, adına ulaşılan 95 kişinin uzman mı, asistan mı olduğu belirlenememiştir.[5] Yaptığımız çalışmayla, yirmi yılda aile hekimliği asistan sayısının 154'ten 3101'e çıktığı ve 20 kattan daha fazla arttığı görülmektedir.

Ülkemizde şu anda 83 tıp fakültesinde 105 AH bölümü bulunmaktadır. Akademik aile hekimliği bölümlerinin kurulmaya başlamasının onuncu yılında aktif olan tıp fakültelerinin %70'inde (35 fakülte) AH anabilim dallarının bulunduğu saptanmıştır.[4] Bu sayı 2013'e gelindiğinde istikrarlı bir artış göstererek 63'e çıkmıştır (toplam 86 fakültede).[6] Çalışma verilerimize göre otuzuncu yılda bu istikrarlı artışın devam ettiği görülmektedir. Onuncu yılda 35, 2013'te 63, 2023'te AH anabilim dalı/klinik sayısının 105 olduğu göz önüne alındığında her on yılda AH anabilim dalı/klinik sayısının iki katına yakın arttığı izlenmektedir.

Türkiye'de 2003 yılında AH bilim alanında 10 doçent ve sadece bir profesör bulunurken aradan geçen on yılda 82 kişi daha doçent unvanı alarak 2013 yılında toplam doçent sayısı 92 kişi olup, bunların 20'si profesörlüğe atanmışlardır.[10] Başak ve Güldal'ın 2014'te yaptığı ve akademik AH bölümlerinin 20 yıllık gelişimsel sürecinin değerlendirildiği araştırmada; toplam 58 anabilim dalında, 40 öğretim görevlisi, 54 yardımcı doçent, 56 doçent, 27 profesörden oluşan toplam 177 öğretim elemanı ile 340 asistanın aktif olarak AH eğitimi aldığı belirlenmiştir.[6] 2014 yılında yaklaşık 2500 civarında olan AHU sayısı, 2019 yılına gelindiğinde yaklaşık 4000'e ulaşmıştır. Böylece Türkiye'de önemli bir mesafe kat eden AH disiplini yaklaşık 80 anabilim dalı/klinik ile hizmet vermeye devam etmekteydi.[6,11] Bizim yaptığımız araştırmada, Türkiye'de şu ana kadar 211 kişinin YÖK'ten doçentlik sürecini tamamlayarak aile hekimliği alanında "doçent unvanı" aldığı tespit edilmiştir. Doçentlerden 93'ü profesörlük kadrosuna atanmıştır. Ancak bunların bir kısmı emekli olmuştur veya akademi dışında başka yerlerde çalışmaktadır. Hâlihazırda 105 AH anabilim dalında / kliniğinde 104 doktor öğretim üyesi, 86 doçent ve 74 profesör olmak üzere, toplamda 264 öğretim üyesi 3727 asistana tıpta uzmanlık eğitimi vermektedir. Başak ve Güldal'ın[6] 2014 yılında yaptığı araştırmada 177 öğretim elemanı ile 340 asistana eğitim verilirken aradan geçen yaklaşık 10 yılda asistan sayısı 10 kattan fazla artmışken buna karşılık eğitici sayısının yaklaşık olarak iki kat bile artmadığı görülmektedir.

Yıllara göre TUS'ta açılan asistan sayılarını da incelediğimiz çalışmamızda asistan sayısının da düzenli bir şekilde arttığını grafiksel olarak da izlemekteyiz (Şekil 1). Özellikle 2019-2022 yılı arasındaki son dört yıllık dönemde açılan asistan kadrosu sayısı (n=4644) önceki 2008-2018 yılları arasındaki 10 yılda açılan asistan kadrosu sayısı (n=4905) kadardır. On yıl önce bir öğretim elemanına iki asistan düşerken bugün bu sayı 14'e çıkmıştır. Bunun da beraberinde eğitim kalitesinde bir gerileme getirebileceği endişesi uzaktan uzağa görülmektedir.

Ayrıca Tıpta Uzmanlık Kurulu 2017 AH Uzmanlık Eğitimi Çekirdek Müfredatında saha eğitimi tanımlamış ve saha eğitiminin yapılabileceği yerleri açıkça ifade etmiştir. On sekiz aylık saha eğitimi alanlarından biri de eğitim aile sağlığı merkezleri olarak tanımlanmıştır.[12,13] Yirmi altı Eylül 2014 tarihli Resmi Gazetede yayımlanan yönetmelik ile EASM'lere ilişkin mevzuat düzenlenmiştir. Buna rağmen günümüze kadar sınırlı sayıda EASM hizmete girmiş durumdadır. Ülkemizde AH uzmanlık eğitimi vermekte olan anabilim dalı ve klinik sayısına bakıldığında açılan EASM'lerin son derece yetersiz olduğu görülmektedir.[13] Mart 2019 itibariyle Türkiye'de toplam 17 AH kliniğine bağlı 25 EASM bulunmaktadır. Bunlara bağlı toplam 71 aile hekimliği birimi mevcuttur.[14] Bizim çalışmamızda EASM sayısının 54, AHB sayısının da 141 olduğu tespit edildi. Son üç yılda EASM ve AHB sayısı ikiye katlanmış olsa da her geçen gün artan asistan sayısı göz önüne alındığında EASM'lerin sayısındaki yetersizlik ve çoğu anabilim dalı veya AH eğitim kliniğine bağlı bir EASM'nin olmaması asistanların saha eğitiminde ciddi aksaklıkların olduğuna işaret etmektedir. Nitekim, bir araştırmada uzmanlık eğitimindeki saha eğitiminin EASM'de verilmesi gerektiği ortaya konmuştur.[15]

İki bin on bir yılında çıkarılan yasayla Sağlık Bakanlığına, mevcut AH uzmanlık eğitimi yolu dışında "uzaktan, yarı zamanlı uzmanlık eğitimi" olarak tanımlanan ikinci bir AH uzmanlık eğitimi yolunu kullanma yetkisi verilmiştir.[16] Sözleşmeli Aile Hekimliği Uzmanlık Eğitimi (SAHU) olarak adlandırılan bu programla aile hekimliği uzmanlık eğitimi almakta olan asistan sayısı 626'ya ulaşmıştır. Bu alternatif yarı zamanlı uzmanlık eğitimi AH disiplini tarafından pek tasvip edilmemekle beraber, etik olarak AH anabilim dalları / klinikleri himayesinde gerçekleştirilen eğitimlere her türlü katkı verilmesinden de geri kalınmamıştır.

Topallı'nın[5] 2003 yılında yaptığı kesitsel araştırmada Türkiye'de AHU sayısı 907 iken 2014'te Başak ve Güldal'ın[6] araştırmasında 2500 civarında AHU olduğu belirtilmiştir. Şu anda eğitim kliniği onayı almış olan 90 AH kliniğinin

%95'ü ile birebir iletişim kurularak elde edilen verilere göre, 4107 AHU rakamına ulaşılmıştır (Tablo 3). Çalışmamızda eğitim klinikleri ile birebir görüşüldü. Asistan sayısı ve öğretim elemanı sayısında verilen rakamlarda hata payı oranı %1 -2 seviyesinde olmakla beraber, ilgili kliniğin kuruluşundan günümüze kadar mezun olan AHU sayısı konusunda verilen rakamlarda tereddütler ve özellikle eksiklikler olabileceği kanaatini taşımaktayız. Çünkü bazı yerlerde eski kayıtlara ulaşılamadığı açıkça belirtildiği gibi kimi yerlerde de orada çalışan öğretim elemanları yeni olduğundan ve eski çalışanlara ulaşılamadığından AHU sayısı ile ilgili ulaştığımız rakamların daha yüksek olduğunu düşünmekteyiz. Topallı'nın[5] 2003 yılında yaptığı araştırmada AHU ve asistan toplamı 1150 rakamı elimizde bulunmaktadır. Ayrıca Öğrenci Seçme ve Yerleştirme Merkezinin (ÖSYM) resmi web sitesinden ulaştığımız 2005 yılından günümüze kadarki TUS kontenjanları 11060 olup bunların yaklaşık %10'unun branş değiştirdiği veya yerleştiği halde kayıt yaptırmadığı ön görüldüğünde 10 bin kontenjan rakamına ulaşmaktayız (Şekil 1). Bundan henüz mezun olmayan son üç yılın asistan kontenjan sayısı olan 3500 rakamı çıkarıldığında 6500 rakamına, buna Topallı'nın[5] 1150 rakamı eklenince 7650 rakamına ulaşıyoruz. Dolayısıyla yukarıda yaptığımız analiz sonrasında, Türkiye'de ilk AH anabilim dalı kurulduğundan bugüne kadar yaklaşık 8000 civarında AHU'nın mezun olduğunu rahatlıkla söyleyebiliriz. Ancak mezun AHU sayısı ile ilgili bilgilerdeki tereddütler çalışmamızın öne çıkan bir kısıtlılığı olarak da not edilebilir.

Sonuç olarak, Türkiye'de 30 yılda AH disiplininin anabilim dalından öğretim elemanına, asistanından yetiştirdiği uzman sayısına, müfredatından EASM'sine kadar ciddi anlamda mesafe kat ettiği ve sürekli gelişerek büyüdüğü belirgin olarak göze çarpmaktadır. Bu büyümenin beraberinde bazı yapısal sorunlar da getirdiği aşikardır. Bu sorunların başında artan asistan sayısına göre çok geride kalan öğretim elemanı sayısı ve kadroları ön plana çıkmaktadır. Öğretim elemanı ve akademik kadronun güçlendirilmesi işinde sorumluluğun çoğunlukla AH akademisyenlerinde olduğunu düşünüyorum. Bu bağlamda her AH eğiticisi, asistanlarının eğitimi esnasında kabiliyetli ve akademisyenliğe hevesli meslektaşlarını yüreklendirmeli ve destek olup adeta önünü açmalıdır.

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Evaluation of Posture, Balance, and Gait in Diabetic Patients
Diyabetik Hastalarda Postür, Denge ve Yürümenin Değerlendirilmesi

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Abstract

Objective: Diabetes mellitus is a chronic metabolic disease that occurs regardless of age and gender. One of the most common complications is polyneuropathy (PNP), which may lead to balance, posture, and gait disorders. We aimed to determine the possible role of the presence of neuropathy in posture, balance, and gait disorders in diabetic patients.

Methods: Patients who were followed up with a diagnosis of diabetes mellitus in the outpatient clinic of the Department of Endocrinology, Çukurova University Faculty of Medicine were included in the study. Gait and balance were evaluated on a static posturography force platform performing four tasks (eyes open , eyes closed, head to the right, head to the left, and tandem Romberg), Tinetti Balance and Gait Scale and electroneurography (ENG) and sympathetic skin responses were evaluated to determine the accompanying autonomic and peripheral nerve involvement. The results were compared with the control group.

Results: A total of 29 patients with diabetes mellitus and 16 healthy controls were included in the study with a mean age of 49.9±7.1 and 47.7±6.6 years, respectively. Sensory conduction velocities in the median and ulnar nerves and motor conduction velocities in the peroneal and ulnar nerves were found to be slowed down in diabetics compared to normal controls ($p<0.001$ and $p<0.003$). When interpreted together with the clinical picture, 14 of the diabetics had PNP as a result of the ENG study and 15 of them did not have findings suggestive of polyneuropathy. Autonomic fiber involvement was observed in 5 (5/29; 17.2%) of diabetic patients. In diabetics, Tinetti gait, balance, and total score were statistically significantly lower than in normal control subjects ($p<0.001$). Posturographic study was performed on the platform with the head turned to the right or left and with the tandem Romberg test and it was observed that diabetics oscillated more than normal subjects and this difference was statistically significant ($p=0.002$; $p=0.03$, and $p=0.041$, respectively).

Conclusion: Our study revealed that although postural balance disorders are directly related to the presence of neuropathy in diabetic patients, diabetic patients without polyneuropathy also displayed problems with balance and postural stability compared to normal controls.

Key words: Diabetes, posturography, gait, balance

Özet

Giriş: Diabetes mellitus yaş ve cinsiyet ayırımı gözetmeksizin görülebilen kronik metabolik bir hastalıktır. En sık görülen komplikasyonlarından biri polinöropati (PNP) olup denge, postür ve yürüme bozukluklarına yol açabilmektedir. Diyabetik hastalarda nöropati varlığının postür, denge ve yürüme bozukluklarında olası rolünün belirlenmesi amaçlanmıştır.

Yöntem: Çalışmaya Çukurova Üniversitesi Tıp Fakültesi Dahiliye-Endokrinoloji Anabilim Dalı polikliniğinde diabetes mellitus tanısı ile izlenen olgular alınmıştır. Bu olgularda yürüme ve denge statik postürografi (göz açık, göz kapalı, baş sağa, baş sola ve tandem Romberg) ve Tinetti Denge ve Yürüme Skalası ile değerlendirilmiş olup eşlik eden otonomik ve periferik sinir tutulumunu belirlemek için elektronörografi (ENG) ve sempatik deri yanıtlarına (SDY) bakılmıştır. Elde edilen veriler kontrol grubu ile karşılaştırılmıştır.

Bulgular: Diabetes mellitus tanılı toplam 29 hasta ve 16 sağlıklı kontrol grubu çalışmaya dahil edilmiş olup ortalama yaş sırası ile 49,9±7,1 ve 47,7±6,6 yıldır. Diyabetiklerde median ve ulnar sinirlerde duyusal iletim hızları ve peroneal ve ulnar sinirlerde ise motor iletim hızları normal kotrollere göre yavaşlamış bulunmuştur. Bu değerler istatistiksel olarak anlamlıdır ($p<0.001$ ve $p<0.003$). Klinik tablo ile birlikte yorumlanacak olur ise diyabetiklerin ENG çalışması sonucunda 14'ünde PNP saptanmış, 15'inde ise polinöropatiyi telkin eden bulgular gözlenmemiştir. SDY bakıldığında diyabetiklerde 3 olguda ayakta, 2 olguda ise hem ayak hem de elde SDY'ları elde edilememiştir. Böylece 5 olguda (5/29; % 17,2) otonomik (sudomotor) lif tutuluşu görülmüştür. Bu 5 olguda ENG verileriyle polinöropati tanısı da konmuştur. Tinetti yürüme, denge ve total skor istatistiksel olarak anlamlı olacak şekilde normal kontrol olgularından daha düşük olarak elde edilmiştir ($p<0.001$). Postürografik çalışma platform üzerinde başın sağ veya sola dönük olduğu pozisyonda ve tandem Romberg testi ile diyabetiklerin normallere göre daha fazla salındığı ve istatistik olarak bu farkın anlamlı olduğu görülmüştür (sırası ile p=0,002; p=0,03 ve p=0,041).

Sonuç: Çalışmamız diyabetik hastalarda nöropati varlığı ile doğrudan ilişkili olmakla birlikte polinöropatisi olan ve olmayan olgularda postüral stabilite ve dengenin kontrol grubuna göre bozuk olduğunu ortaya koymuştur.

Anahtar kelimeler: Diyabet, postürografi, yürüme, denge

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Giriş

Diabetes mellitus (DM) hemen her yaşta, komplikasyonları nedeniyle hastaların yaşam kalitesini ve süresini etkileyen kronik metabolik bir hastalıktır. Diyabetin dünya çapında yaklaşık 530 milyon yetişkini etkilediği ve 20-79 yaş arası yetişkinlerde küresel yaygınlığının % 10,5 olduğu tahmin edilmektedir.[1] Türkiye'de ise diyabet prevelansı yüzde %11,1 olarak bildirilmiştir.[2] Prevelansındaki hızlı artış nedeni ile diyabet günümüzdeki en önemli sağlık problemlerinden biridir.[3] Komplikasyonları içerisinde nörolojik hastalıklar da olup inme ve polinöropati (PNP) ilk sıralarda yer almaktadır. [4,5]

Diyabetik nöropati ilk olarak 1800'lü yılların sonlarında tanımlanmış ve o dönemde ağırlıklı olarak yamalı motor tutulumu ile ağrılı ataksik form olarak iki ayrı formda değerlendirilmiştir.[5] Ancak 2009 yılında Toronto Diyabetik Nöropati Konsensüs Paneli diyabetik periferik nöropati için yeniden resmi bir sınıflandırma ve tanım şeması oluşturmuştur. Panel diyabetik periferik nöropatileri tutulum şekline göre ayırmış ve hastalıkları fokal, multifokal veya jeneralize formlar olarak kategorize etmiştir.[6]

İnme ve polinöropati, denge, postür ve yürümeyi etkileyen hastalıklardandır. İnme öncelikle motor yolları, polinöropati ise motor, sensoryal ve de otonomik yolakları etkileyerek yürümeyi ve dengeyi bozabilir. Diyabetik polinöropatisi olan hastalarda ayakta durma ve yürüme sırasında düşme veya düşmeye bağlı bir yaralanma bildirme riskinde normal popülasyona göre beş kat artış olduğu bildirilmiştir.[7]

Buna bağlı gelişen yürüme, denge ve postür bozuklukları yaşlı popülasyonda daha belirgin olarak düşmelere neden olabilmektedir. Bu nedenle diyabetik PNP tanısının konması ve tanıya uygun tedavinin uygulanması bu hasta gruplarında yaşam kalitesini daha da yükseltecektir.[8,9,10]

Bu çalışmada diyabetik olgularda elektrofizyolojik incelemeler ile polinöropati ve otonomik nöropati varlığı belirlenmiş, Tinetti denge skalası ve posturografik testler ile denge bozukluklarının kantitatif değerlendirilmesi yapılmış, bu sonuçlar dahilinde periferik sinir fonksiyon bozuklukları ile denge ve yürüme arasındaki ilişkinin irdelenmesi ve diyabetik hastalarda nöropati varlığının postür, denge ve yürüme bozukluklarında olası rolünün belirlenmesi amaçlanmıştır.

Yöntem

Olgular

Çalışmaya Çukurova Üniversitesi Tıp Fakültesi Dahiliye-Endokrinoloji Bilim Dalı polikliniğinde Haziran 2009-Haziran 2011 tarihleri arasında diabetes mellitus tanısı ile izlenen olgular alınmıştır. Normal kontrol grubu ise hastane personellerinden belirlenmiş olup mesai saatleri dışında incelemeleri yapılmıştır. Olgulara uygulanacak yöntemler hakkında ayrıntılı bilgi verilerek yazılı onam formu alınmıştır.

Çalışmaya diyabetes mellitus tanısı kesin olan, dekompanse kalp hastalığı ve solunum sıkıntısına yol açan solunum sistemi hastalıkları olmayan, yürüme ve dengeyi bozabilecek ortopedik ve nörolojik hastalıkları olmayan, çoklu ilaç kullanımının olmadığı (özellikle gabapentin ve pregabalin gibi ilaçlar) ve vestibüler disfonksiyonu olmayan (klinik, odiyolojik ve kalorik testler ile doğrulanan) hastalar dahil edilmiştir.

Verilerin toplanması

Çalışmaya dahil edilen olguların nörootolojik, ortopedik, kardiyak ve nörolojik muayeneleri yapılmıştır. Elektrofizyolojik incelemelerin sonuçlarının yanlış elde edilmesine neden olabileceğinden ekstremitelerde ödem olmamasına özellikle dikkat edilmiştir. Daha sonra tam nörolojik muayenede bilinç, yüksek bilişsel işlevler, menengial irritasyon bulguları, periferik sinir duyarlılığı, kranial sinirler, göz hareketleri, Romberg testi, serebellar testler, derin ve yüzeyel duyum, kas gücü, tonus ve refleksler muayene edilmiştir. Derin duyum muayenesinde pozisyon duyumu yanı sıra 128 Hz diyapozon ve biyoesteziyometre ile vibrasyon duyumları değerlendirilmiştir. Diyapozon ile vibrasyon duyusu normal, azalmış ve yitik olarak 3 kategoride değerlendirilmiştir. Derin tendon refleksleri 4 kategoride değerlendirilmiştir; 3) canlı, 2) normoaktif, 1) hipoaktif, 0) abolik olarak yorumlanmıştır. Kas gücü muayenesi 6 kategoride değerlendirilmiştir; 5) tam kuvvet, 4) normal kas hareketi ancak karşı yönde kuvvet ile yenilebilmektedir, 3) kas yalnızca yer çekimine karşı koyabiliyor, 2) test edilen kas ancak yer çekimini ortadan kaldıran bir pozisyona getirildiğinde hareket edebiliyor, 1) kasta eklem hareketine sebep olmayan ancak gözle görülebilen veya palpasyon ile farkedilen bir hareket var, 0) plejik durum olarak yorumlanmıştır.

Polinöropati varlığını tespit için nörolojik muayene yanı sıra Medelec Synergy EMG/ENG cihazı ile elektronörografi (ENG) çalışması yapılmıştır. Sempatik deri yanıtları (SDY) sağ el palmar ve dorsal yüzüne ve sağ ayak taban ve ayak sırtı derisi üzerine yine yüzeyel elektrot yapıştırılarak 3 kez tekrarlanarak yüksek ses ve ağrılı uyaranlar verilerek kaydedilmiştir.

Olgularda yürüme ve denge işlevi Tinetti Denge ve Yürüme Skalası[11] ile, postürografik kayıtlar ise Lucerne II statik postürografi cihazı[12,13] ile tamamlanmıştır. Postürografik değerlendirmede hastalara cihazın platformu üzerinde mümkün olduğunca dik bir pozisyonda, çıplak ayakla, ayakları 4 cm aralıklı ve kolları vücutlarının yanında olacak şekilde durmaları söylenmiştir. İlk kayıt gözler açıkken, ikincisi ise gözler kapalıyken, üçüncüsü baş sağa dönük ve dördüncüsü baş sola dönük olarak yapılmıştır. Son kayıt ise tandem Romberg ile yapılmıştır.

Tandem Romberg'de bir ayak diğer ayağın önünde durur ve kollar vücudun önünde yatay olarak kaldırılır. Kayıt süreleri her aşama için 30 saniye olarak standardize edilmiştir.

İstatistik

Verilerin analizi SPSS 19.0 programı ile yapılmıştır. Kategorik ölçümler sayısal ve yüzdelerle, istatistik sayısal ölçümler ise ortalama ve standart sapma ile belirlenmiştir. Kategorik ölçümler ile gruplar karşılaştırılırken Ki Kare testi kullanılmıştır. Sayısal ölçümlerin iki grup arasında karşılaştırmasında varsayımların sağlanması durumunda bağımsız gruplarda T testi, varsayımların sağlanmamasında ise Mann Whitney U testi kullanılmıştır. Sayısal ölçümlerin üç grup arasında karşılaştırmasında varsayımların sağlanması durumunda tek yönlü varyans analizi, varsayımların sağlanmamasında ise Kruskal Wallis testi kullanılmıştır. Üçlü grup karşılaştırmalarında anlamlı bulunan ölçümler için ise, ikili alt grup karşılaştırmaları, Post Hoc testleri (Bonferroni veya Tamhane) veya Bonferroni düzeltmesi yapılmış Mann Whitney U testi ile incelenmiştir. Tüm testlerde istatistiksel önem düzeyi 0.05 olarak alınmıştır.

Çalışma için Çukurova Üniversitesi Tıp Fakültesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulundan onay alınmıştır (Karar No 2- 2-2009).

Bulgular

Çalışmaya diyabetes mellitus kesin tanılı 29 hasta ile sağlıklı 16 kontrol (NK) olgusu alınmıştır. DM tanılı 29 hastanın yaşları 38-62 yıl arasında değişmektedir ve olguların ortalama yaşı 49,9±7,1 yıldır. 16 NK olgusunun yaş dağılımları 39-61 yıl arasında değişmekte olup ortalama yaş 47,7±6,6 yıl olarak saptanmıştır. Her iki grup arasında yaş açısından istatistiksel olarak fark bulunamamıştır (p:0,322). Diyabetik olguların 21'i (% 72) kadın, 8'i (% 28) ise erkektir. NK grubunda ise 10 kadın (% 62) ve 6 erkek (% 38) bulunmaktadır. NK ve diyabetik olgulara ait demografik veriler Tablo-1'de görülmektedir.

Tablo 1. *Normal kontrol ve diyabetik olguların demografik özelikleri*

Ölçümler ortalama±standart sapma medyan (min-maks)	**Kontrol**	**DM**	**P**
Cinsiyet, n (%) Kadın Erkek	 10 (%62) 6 (%38)	 21 (%72) 8 (%28)	0,492
Yaş[a,b]	47,7±6,6 48 (39-61)	49,9±7,1 49 (38-62)	0,322
Yaş-Kadın[a,b]	45,9±6,6 46,5 (39-61)	49,8±7,9 49 (38-62)	0,192
Yaş-Erkek[a,b]	50,7±6 49,5 (42-58)	50,1±5,1 49 (43-58)	0,858

***Mann-Whitney U testi uygulanmıştır, [a] ortalama±standard sapma, [b] medyan (min-maks)**

Diyabetiklerde median ve ulnar sinirlerde duyusal iletim hızları ve peroneal ve ulnar sinirlerde ise motor iletim hızları normal kotrollere göre yavaşlamış bulunmuştur. Bu değerler istatistiksel olarak anlamlıdır ($p<0.001$ ve $p<0.003$) (Tablo-2). Median motor iletim ise anlamlı bir fark göstermemiştir. H refleksi NK olgularının tamamında alınabilmiş ve ortalama latansı 29.2±2.0 msn olarak saptanmıştır. Diyabetik 29 hastanın 4'ünde H refleksi alınamamış, 25 olguda elde edilen H refleksinin latansı ortalama 32.9±4.7 msn olarak bulunmuştur. Bu latans değeri normallere göre uzamış olup fark istatistiksel olarak anlamlıdır ($p<0.006$). Klinik tablo ile birlikte yorumlanacak olur ise ENG çalışması sonucunda diyabetiklerin 14'ünde PNP saptanmış, 15'inde ise polinöropatiyi telkin eden bulgular gözlenmemiştir. PNP saptanan 14 olgunun yaş dağılımı 42-62 yıl arasında olup ortalama 50,9±6,4 yıldır. ENG çalışmaları normal sonuçlar veren 15 olgunun yaş dağılımı ise 38-62 yıl arasında olup ortalama yaş 48,9±7,9 yıldır. PNP saptanan ve ENG bulguları normal olan olgularda yaş dağılımı açısından istatistiksel olarak anlamlı fark bulunmamıştır (p:0,638).

Tablo 2. *Diyabetik ve kontrol gruplarının ENG bulguları*

Ölçümler ortalama±standart sapma medyan (min-maks)	**Kontrol**	**DM**	**P**
Medyan sinir motor ileti hızı[a, b]	57,8±4,9 57,2 (51,9-70)	55,1±7,1 53,1 (44,4-66,7)	0,185
Medyan sinir duysal ileti hızı[a, b]	62,2±4,8 63 (54,2-70,6)	50,8±8,2 53,2 (33,3-63,2)	**<0.001**
Ulnar sinir motor ileti hızı[a, b]	61,6±6,4 63 (51,7-72,4)	54,8±6,4 54,8 (44-66,2)	**0,001**
Ulnar sinir duysal ileti hızı[a, b]	58±5,3 56,4 (50,9-71)	51,2±7,7 50,4 (34,2-62,5)	**0,003**
Peroneal sinir motor ileti hızı[a, b]	49,1±2,9 49,4 (43,6-55)	43,7±6,7 44,6 (30,6-54,9)	**0,003**

***Student T Testi uygulanmıştır, [a] mean±standard sapma, [b] median (min-maks).**

Diyabetiklerde 3 olguda ayakta, 2 olguda ise hem ayak hem de elde SDY'leri elde edilememiştir. Böylece 5 olguda (5/29; % 17,2) otonomik (sudomotor) lif tutuluşu görülmüştür. Bu 5 olguda ENG verileriyle polinöropati tanısı da konmuştur. Görüldüğü gibi 29 olgudan 5'inde hem somatik hem otonomik liflerde tutulum saptanmıştır. Diğer bir yaklaşım ile polinöropatili 14 olgunun 5'inde (%36) otonomik ve somatik liflerin birlikte tutulduğu gözlenmektedir. Tablo 3'de görüldüğü gibi SDY elde edilen polinöropatili olgularda SDY'nin amplitüdü polinöropatisiz diyabetikler ve NK olgularına göre düşüktür (p< 0.009).

Tablo 3. *Sempatik deri yanıtları: normal kontrol ve diyabetiklerde amplitüd değerleri*

Ölçümler(*) ortalama±standart sapma medyan (min-maks)	**Kontrol**	**PNP yok**	**PNP var**	**P**
Sempatik deri yanıtları - El	2,9±1,6 3,5 (0,5-5,8)	3,2±1,4 3,2 (1,5-6,6)	1,9±1,9 1,1 (0-5,3)	0,111
Sempatik deri yanıtları – Ayak [a,b,c]	1,9±1,2 1,6 (0,4-3,9)	2,1±0,9 2,1 (0,7-4,1)	0,9±1 0,5 (0-2,9)	0,009

*** Student T testi uygulanmıştır**

[a] Kontrol vs polinöropati yok için p<0,05, b Kontrol vs polinöropati var için p<0,05

[c] Polinöropati yok vs polinöropati var için p<0,05

* SDY değeri olmayan 5 olgunun değeri 0 alındığında yukarıda verilen tablo elde edilmiştir.

NK grubunda denge ve yürüme skalalarında ve toplam skala skorunda tam skorlar elde edilmiştir (denge 12±0, yürüme 16±0 ve toplam 28±0). Buna karşılık diyabetiklerde denge skoru ortalaması 13,7±1,8, yürüme skoru ortalaması 11,3±0,7 ve total skor ortalaması 25±2,3 olarak tespit edilmiştir. Her 3 değer de istatistik olarak anlamlı olacak şekilde normal kontrol olgularından daha düşüktür (p<0.001) (Tablo-4).

Tablo 4. *Normal kontrol ve diyabetiklerde Tinetti skorları*

Ölçümler ortalama±standart sapma medyan (min-maks)	**Kontrol**	**DM**	**P**
Tinetti denge skoru	16±0 16 (16-16)	13,7±1,8 14 (10-16)	**<0.001**
Tinetti yürüme skoru	12±0 12 (12-12)	11,3±0,7 11 (10-12)	**<0.001**
Tinetti total skor	28±0 28 (28-28)	25±2,3 25 (20-28)	**<0.001**

***Student T Testi uygulanmıştır.**

Diyabetli olgular "PNP var" ve "PNP yok" olarak iki alt grupta değerlendirildiğinde Tinetti skorları NK ve diyabetik 2 alt grup karşılaştırıldığında, 3 grubun da Tinetti denge skoru ve total skorunun istatistiksel olarak farklı olduğu görülmüştür (Tablo 5). Ancak Tinetti yürüme skorlarının ortalama değerlerinin PNP saptanmış ve PNP saptanmamış diyabetik olgu gruplarında benzer olduğu (11.5±0,6 ve 11.1±0,6) ve istatistiksel olarak fark göstermediği gözlenmiştir.

Tablo 5. *Kontrol ve diyabetik alt gruplarda Tinetti skorları*

ortalama±standart sapma medyan (min-maks)	**Kontrol**	**PNP yok**	**PNP var**	**P**
Tinetti denge skoru[a,b,c]	16±0 16 (16-16)	14,8±1 15 (13-16)	12,5±1,7 12,5 (10-16)	**<0.001**
Tinetti yürüme skoru[a,b]	12±0 12 (12-12)	11,5±0,6 12 (10-12)	11,1±0,6 11 (10-12)	**<0.001**
Tinetti total skor[a,b,c]	28±0 28 (28-28)	26,3±1,5 27 (24-28)	23,6±2,2 23,5 (20-28)	**<0.001**

[a] Kontrol vs "polinöropati yok" için p<0,05, [b] Kontrol vs "polinöropati var" için p<0,05
[c]"Polinöropati yok" vs "polinöropati var" için p<0,05, Kruskal-Wallis Testi uygulanmıştır.

NK ve diyabetik gruplar karşılaştırıldığında göz açık ve göz kapalı pozisyonlarda postürografik sapma alanı açısından fark görülmemiştir. Ancak başın sağ veya sola dönük olduğu pozisyonda ve tandem Romberg testi ile diyabetiklerin normallere göre daha fazla salındığı ve istatistik olarak bu farkın anlamlı olduğu görülmüştür (sırasıyla p:0,002, p:0,03 ve p:0,041). Toplam sapma alanı dikkate alındığında ise yine diyabetiklerde normallere göre anlamlı derecede yüksek olduğu görülmektedir (p:0,002) (Tablo 6). NK ve diyabetik alt grupların posturografi analizi karşılaştırıldığında ise tandem Romberg ölçümleri (p:0,287) dışındaki tüm ölçümlerde gruplar arasında istatistiksel farklılıklar bulunmuştur. Anlamlı farklılık bulunan ölçümlerin hemen hepsinde polinöropatili grubun değerleri diğer iki grubun ölçümlerinden yüksek bulunmuştur.

Tablo 6. *Diyabet ve kontrol gruplarının postürografi analizleri*

Ölçümler ortalama±standart sapma medyan (min-maks)	**Kontrol**	**DM**	**P**
Göz açık	2,4±1,4 1,9 (1-6,3)	2,9±1,7 2,4 (0,9-8,8)	0,115
Göz kapalı	5,3±4,9 4,4 (1,4-23)	6,6±4,2 5,7 (1,7-17,6)	0,162
Başı sola dönük	3,2±1,5 3,3 (1-6)	8,3±10,9 4,8 (0,8-56,1)	**0,002**
Başı sağa dönük	4,1±2,5 3,8 (0,6-8,8)	8,4±8,4 4,8 (2,8-41,5)	**0,030**
Tandem Romberg	8,2±6,3 6,2 (1,6-23,4)	36,1±69 10,1 (3,2-307)	**0,041**
Toplam	23,2±11,8 20,5 (8,4-57,9)	62,3±72,5 36,7 (12,3-321)	**0,002**

***Student T Testi uygulanmıştır.**

Tartışma

Bu çalışmada NK ve diyabetik olgu grupları karşılaştırılmıştır. Elde edilen veriler denge ve yürümenin diyabetik polinöropati ile doğrudan ilişkili olduğunu, diyabetik hastalarda nöropati eşlik etsin veya etmesin normal hasta grubuna göre bozulmuş olduğunu göstermektedir. Bu bozulma diyabetik nöropatili hastalarda daha belirgindir. Diyabetik olgularda afferent sistemin etkilenmesine bağlı olarak denge skorları yürüme skorlarına göre daha belirgin etkilenmiştir.

Postür ve denge yürümenin ilk basamağı olup sağlıklı fizyolojik postür sağlanamadığında yürüme bozuklukları ortaya çıkar.[14] Diyabetik olguların 14'ünde polinöropati saptanmış olup 15'inde ise periferik sinir tutulumu bulguları saptanmamıştır. Tinetti denge skoru diyabetik olgularda normal kontrol grubuna göre düşük bulunmuştur ($p< 0.001$). Diğer yandan diyabetli olgu gruplarında ise PNP saptanan olgularda PNP saptanmayan olgulara göre daha da düşük bulunmuştur ($p< 0.001$). Bu da polinöropati varlığının dengeyi bozduğunu göstermektedir. Postürografik değerlendirme ile de benzer şekilde normal kontrol grubu ile diyabetiklerin ve PNP olan ve olmayan diyabetik olguların toplam postüral sapma alanı ortalama değerindeki farklılık anlamlı bulunmuştur (sırası ile p:0,002, p:0,03 ve p:0,041). Ayrıca SDY verilerine bakıldığında diyabetik polinöropatili hastalarda, polinöropati saptanmayan ve NK grubuna göre yanıt elde edilememiş veya daha düşük amplitüdlü yanıtlar elde edilmiştir (p: 0,009). Bu da PNP saptanan olgularda ayrıca otonomik nöropatinin de eşlik ettiğini göstermektedir. Özellikle otonomik nöropatiye sekonder gelişen ortostatik hipotansiyon, yürüme ve denge bozukluklarının gelişimine katkıda bulunmaktadır. Elde edilen veriler literatür ile benzer şekilde, diyabetik olgularda normal kontrol grubuna göre postür ve denge bozukluklarının daha belirgin olduğunu, polinöropatili hasta grubunda ise bu bozuklukların daha da arttığını göstermektedir.[15] Polinöropati saptanmamasına karşın diyabetli hasta grubunda NK grubuna göre postür ve denge bozukluklarının daha belirgin olması ince lif nöropatisi ile açıklanabilir. İnce lif nöropatisinde diyabetik hastalarda ENG ile tespit edilemese de polinöropati eşlik eder ve bu da bu hasta grubunda postür ve denge bozukluklarına yol açar. Parezi, vestibüler ve görsel işlev bozuklukları olmayan bu olgularda saptanan postür ve denge bozuklukları sadece somatik duyum sistemi patolojsi ile açıklanabilir. Çalışmamız ile benzer şekilde klinik çalışmalarda proprioseptif ve eksteroseptif duyumların bozulması ile postüral adaptasyonun bozulacağı bildirilmiştir.[16]

Efferent fonksiyonları normal olan bu olgularda postürografi ve Tinetti testleri ile saptanan postüral bozukluğun nedeni periferik afferentlerdir. Denge bozukluğunun sebebi olarak gösterilen periferik afferentlerin postür üzerinde etkisini ortaya koymak için yapılan çalışmalarda ayak tabanından gelen duyular ekarte edilmek üzere ayağı buzlu suya sokulmuş, böylece ayak tabanının afferentleri dışlanmıştır. Böylece yürüme ve denge skorlarının değiştiği görülmüştür.[16] Sağlıklı yaşlılarda ortaya çıkan postüral instabilite ve yürüme bozukluklarının sebeplerinden biri de ayak tabanından gelen afferentlerden gelen bilgi akışının azalmasıdır.[17]

Sağlıklı kişilerde ayakta iken duysal modalite blokajı ile denge bozulmakta olup ikinci bir duysal modallite etkilenmesinde ise denge bozukluğu daha da belirginleşmektedir.[18,19] Literatürü destekler şekilde tandem Romberg testi ortalama değerlerinin sonuçları arasında normal kontrol grubu ile diyabetik olgularda çok belirgin bir fark saptanmıştır.

Postür kontrolünde vestibuler ve görsel bilgiler önemli bir rol oynasa da dıştan gelen uyarılara karşı dengeyi sağlamada esas rol derin duyunundur.[17] Bilek ve kalça stratejileri postürün devamlılığını sağlamakta olup diyabetiklerde bu derin duyu etkilenmesine bağlı olarak azalmıştır.[20,21] Buna bağlı adaptif mekanizma bozulmuş ve postural dengesizlik artmıştır. Bu artış Tinetti denge skorlarında ve postürografik kayıtlarda gösterilmiş olup kompanse edilemediğinde ise düşmeler ortaya çıkmaktadır. Buna bağlı olarak da diyabetik polinöropatili hastalarda düşme ve yaralanmalar normal populasyona göre daha yüksektir.[22] Yine diyabetik polinöropatilerde düşmenin daha sık olmasının bir nedeni de taktil ve alt ekstremite proprisepsiyon duyusunda etkilenme , ayakta iken salınım alanının artması ve yürümenin bozulmasıdır.[23]

Sonuç

Çalışmamız diyabetik hastalarda nöropati varlığı ile doğrudan ilişkili olmakla birlikte polinöropatisi olan ve olmayan olgularda postüral stabilite ve dengenin kontrol grubuna göre bozuk olduğunu ortaya koymuştur. Bilindiği gibi bu bozukluklara bağlı yaşanan düşmeler mortalite ve morbiditeyi arttırabilmektedir. Özellikle yaşlı hastalarda dengesizlik yakınması vertigo tanısı alabilmekte, yanlış tanı ve tedavi hastanın yakınmalarını düzeltmeyip ilaç yan etkilerine maruz kalmasına ve yaşam kalitesinin daha da bozulmasına yol açabilmektedir. Diyabet hastalarında her ne kadar nöropatik ağrı daha fazla görülse ve bilinse de sağlık profesyonellerinin, özellikle hastalarla en yakın tıbbi temas noktasında olan aile hekimlerinin diyabet hastalarını denge, postür ve yürüme bozuklukları açısından değerlendirmeleri önerilir.

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Evaluation of Quality of Paper Reporting Online and Face-to-Face Family Medicine Congresses: A Cross-Sectional Study

Online ve Yüz Yüze Yapılan Aile Hekimliği Kongrelerinin Bildiri Raporlama Kalitesinin Değerlendirilmesi: Kesitsel Bir Çalışma

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Abstract

Objective: Our study aimed to evaluate the paper reporting quality of the 18th National Family Medicine Congress, which was held face-to-face before the COVID-19 pandemic, and the 19th National Family Medicine Congress, which was the first online congress during the pandemic, according to the STROBE criteria.

Methods: Our study is cross-sectional analytical. Oral and poster abstracts accepted and included in the congress abstract book were included in the study. A total of 266 abstracts were reviewed. STROBE score was created out of 11 points in total by giving a "1" point if the abstract included the feature in each item and a "0" if it did not. The STROBE scores were compared by evaluating the abstracts separately by two different reviewers. Descriptive statistics, Chi-square test, Student's t-test, Pearson correlation, and Mann-Whitney U test were used. The statistical significance level was taken as $p<0.05$.

Results: Although the rate of verbal presentations was higher in the online congress, there was no significant difference between the congresses regarding the types of papers. In 93.2% of the papers, sampling was not done, or it was not stated that it was done. All of the 18 papers stated to be sample calculations were verbal. When all papers were included, the mean STROBE scores of verbal papers were statistically significantly higher than the scores of poster papers in both reviewers. When the presentation scores according to the congresses were examined, no significant difference was found between the 18th and 19th National Family Medicine Congresses in the same groups.

Conclusion: The online congress format did not affect the reporting quality of the papers. Both congresses have good reporting quality but have the potential for improvement.

Keywords: Congress, research report, online systems, reporting quality

Özet

Amaç: Bu çalışmada, COVID-19 pandemisi öncesinde yüz yüze gerçekleştirilen 18. Ulusal Aile Hekimliği Kongresi ve pandemi sırasında ilk çevrimiçi kongre olan 19. Ulusal Aile Hekimliği Kongresi'nde sunulan bildirilerin STROBE kriterlerine göre raporlama kalitesini karşılaştırmak amaçlanmıştır.

Yöntem: Çalışmamız kesitsel analitik bir çalışmadır. Kongre özet kitabında yer alan sözlü ve poster özetler çalışmaya dahil edildi. Toplam 266 özet incelendi. STROBE puanı, özet her maddede özelliği içeriyorsa "1", içermiyorsa "0" verilerek toplam 11 puan üzerinden oluşturuldu. Özetler iki farklı hakem tarafından ayrı ayrı değerlendirilerek STROBE puanları karşılaştırıldı. Tanımlayıcı istatistikler, Ki-kare testi, Student t-testi, pearson korelasyon ve Mann-Whitney U testi kullanıldı. İstatistiksel anlamlılık düzeyi $p<0,05$ olarak alınmıştır.

Bulgular: Online kongrede sözlü bildiri oranı daha yüksek olmasına rağmen bildiri türleri açısından kongreler arasında anlamlı fark yoktu. Makalelerin %93,2'sinde örnekleme yapılmamış veya yapıldığı belirtilmemiştir. Örneklem hesabı yapıldığı belirtilen 18 makalenin tamamı sözlü idi. Tüm makaleler dahil edildiğinde, her iki hakemde de sözlü bildirilerin ortalama STROBE puanları, poster bildirilerin ortalama puanlarından istatistiksel olarak anlamlı derecede yüksekti. Kongrelere göre sunum puanları incelendiğinde aynı gruplarda 18. ve 19. Ulusal Aile Hekimliği Kongreleri arasında anlamlı fark bulunmadı.

Sonuç: Online kongre formatı bildirilerin raporlama kalitesini etkilememiştir. Her iki kongre raporlama kalitesi de iyi olmakla birlikte iyileştirme potansiyeline sahiptir.

Anahtar Kelimeler: Kongre, araştırma raporu, online sistemler, raporlama kalitesi

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INTRODUCTION

Scientific congresses provide an essential platform to share and discuss the latest research in a particular discipline. Two important methods of sharing medical information in these places are verbal and poster presentations. These papers are often included as summaries in the Congress book. Although these abstracts are subject to peer review, one of the essential criteria for the quality of the paper is whether it is published in reviewed journals or not.

When the literature is examined, the publication rate of congress papers in reviewed journals is below 50 percent.[1] Publication rates in internationally indexed journals are much lower. [2,3] This raises a question mark about the quality of the papers. In recent years, various studies have been carried out to improve the quality of paper reporting. The first of these is the 17-criteria form of CONSORT (Consolidated Standards of Reporting Trials), which was developed in 1996 to improve the reporting quality of randomized controlled trials and revised in 2008 for abstracts. [4,5] Similarly, in 2007, there was a revised 11-point STROBE Checklist: conference abstracts (Strengthening the Reporting of Observational Studies) criteria for evaluating abstracts.[6] These criteria are an international initiative to strengthen the reporting of epidemiological observational studies. STROBE is a collaborative network of epidemiologists, methodologists, statisticians, researchers, and journal editors. The generated checklist provides a checklist for observational research designs such as cohort, case-control, and cross-sectional studies. This checklist provides readers with sufficient information about the planning and conduct of the research, the meaning of its findings, and conclusions.[6] Reporting following these criteria improves the quality of the study and allows for a more accurate interpretation of the results. These criteria help researchers report their work standardized and help readers better understand it.

Unfortunately, the COVID-19 pandemic has led to the cancellation of many events, such as academic meetings, conferences, and congresses worldwide. However, with the development of technology, it has become possible to organize online meetings, and many organizations have taken steps in this direction. The increasing importance of online congresses due to the pandemic is critical regarding information sharing and professional development. Online congresses allow participants worldwide to come together and simultaneously reduce organization costs. However, online congresses also have some drawbacks, such as reducing live interaction, restricting networking opportunities, and the fact that some participants cannot attend some sessions due to time differences. Although various studies report the advantages of online and face-to-face congresses, as far as we can see, no study has been found in the literature about whether there is a difference between the reporting quality of the presentations in these two congress types.

The National Family Medicine Congress has been organized annually since 1993 to bring together professionals working in family medicine to discuss and share the latest research and contribute to updating and developing family medicine practices. The National Family Medicine Congress was held online for the first time in 2020 due to the pandemic (19. National Family Medicine Congress).

Our study aimed to evaluate the paper reporting quality of the 18th National Family Medicine Congress held face-to-face before the COVID-19 pandemic and the 19th National Family Medicine Congress, the first online congress during the pandemic, according to the STROBE Checklist: conference abstracts criteria.

MATERIAL AND METHODS

Study design

Our study is cross-sectional analytical. Verbal and poster abstracts accepted in the 18th National Family Medicine Congress organized by the Turkish Association of Family Physicians and held face-to-face and in the 19th National Family Medicine Congresses held online and included in the congress abstracts book were included in the study. (The 18th national family medicine congresses were held face-to-face in Ankara from 31 October to 2 November 2019. The 19th national family medicine congress was held online between 29 October - 1 November 2020.)

In this context, a total of 266 abstracts, 172 of which were verbal and 94 posters, were analyzed (Table 1).

Table 1. *Number of verbal and poster presentations included in the study by year*

Congress Name	Verbal presentation	Poster presentation	Sum
18th National Family Medicine Congress	93	62	155
19th National Family Medicine Congress	79	32	111
Sum	172	94	266

Evaluation of abstracts

No study that could be experimental was found in the abstracts. Therefore, instead of consort or timmer, STROBE, which is one of the main methods used to evaluate the reporting quality of observational studies, was used. The STROBE Checklist: conference abstracts evaluation system, published in 2007 and consisting of 11 items, was used.[6] STROBE score was created out of 11 points in total by giving a "1" point if the abstract contains the feature in each item and a "0" point if it does not. Most statements in the checklist were singular (such as Contact details for the corresponding author or Description of the study design); however, if the item contains more than one condition (such as Description of setting, follow-up dates or dates at which the outcome events occurred or at which the outcomes were present, as well as any points or ranges on other time scales for the outcomes) "1" point is given if all of them are provided, "0" points are given if some or all are not provided.

To prevent possible bias, the information of the institution and researchers studied was removed from the abstracts selected by a third person other than the researchers. Abstracts in the sample were scored independently by two researchers.

Ethics committee approval was obtained from the clinical research ethics committee of Erzincan Binali Yıldırım University with the number 2023-07/7.

Data analysis

All data were analyzed using the IBM SPSS Statistics 23 (SPSS, Chicago, IL) package program. Categorical variables were presented as numbers and percentages. The conformity of the data to the normal distribution was evaluated with the Kolmogorov-Smirnov test. Normally distributed data were expressed as mean ± standard deviation.

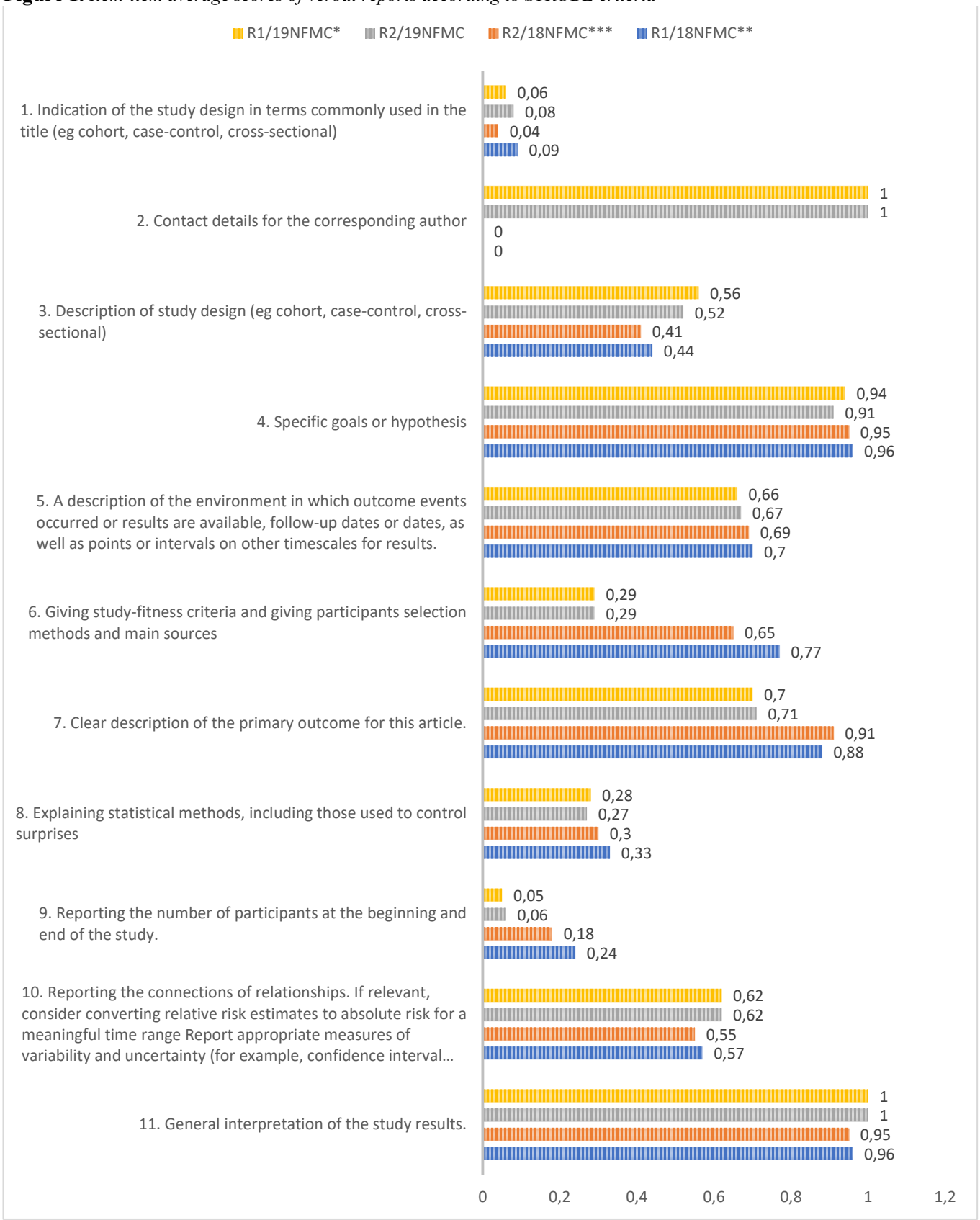
In this study, descriptive statistics to show the basic characteristics of the data, the Chi-square test to test whether there is dependence between categorical variables, the Student's t-test or Mann-Whitney U test to compare the means of two independent groups, the strength of the linear relationship between two continuous variables and Pearson correlation test was used to measure direction. The statistical significance level was taken as $p<0.05$.

RESULTS

A total of 266 abstracts were reviewed. There was no statistically significant difference between the reviewers regarding reviewer scores ($p=0.346$, $r=-0,051$ for verbal presentations and $p=0.439$, $r=0,057$ for poster presentations).

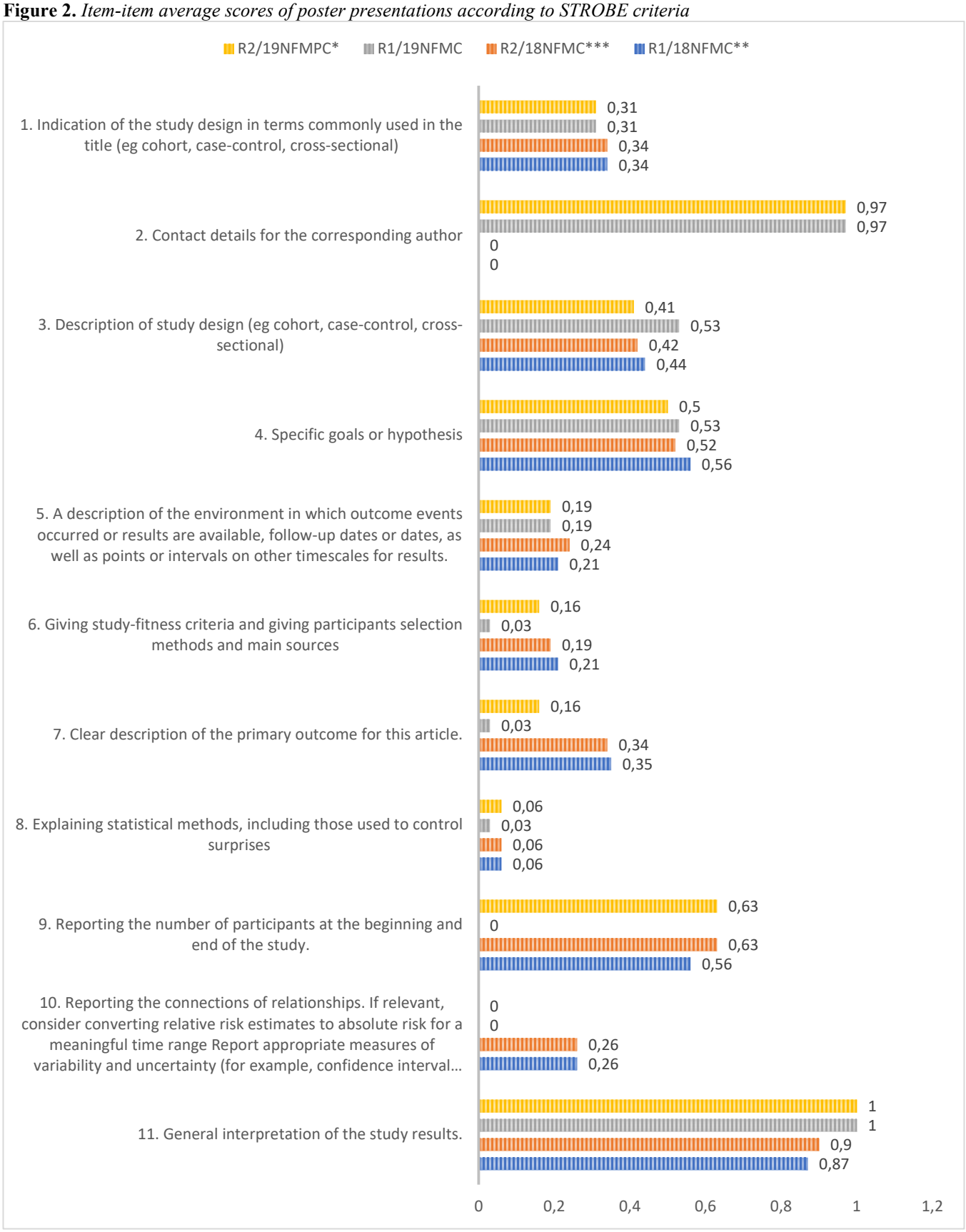
The averages of the reviewers' scores according to the STROBE Checklist: conference abstracts criteria for the verbal and poster presentations in both congresses are given in Figure 1 and Figure 2 (Figure 1, Figure 2). The item with the highest score in verbal reports was item 11, with a score of 0.97±0.16 (11. General interpretation of study results). This was followed by Item 4 with a score of 0.94±0.240 (4. Specific goals or hypothesis). The least scored item was Item 1, with a score of 0.07±0.250 (indicating the study design with commonly used terms -cohort, case-control, cross-sectional- in the title).

Figure 1. *Item-item average scores of verbal reports according to STROBE criteria*



*NFMC: National Family Medicine Congress
**R1: Reviewer 1
***R2: Reviewer 2

Figure 2. *Item-item average scores of poster presentations according to STROBE criteria*



*NFMC: National Family Medicine Congress
**R1: Reviewer 1
***R2: Reviewer 2

In the poster presentations, the items with the highest scores were again the 11th and 4th items (0.93±0.263 and 0.53±0.500, respectively). The least scored item was Item 8, with a score of 0.06±0.235 (8. Describe statistical methods, including those used to control for confounding).

Of the 155 papers presented at the 18th National Family Medicine Congress and included in the booklet, 60% (n=93) were verbal presentations, and 40% (n=62) were poster presentations. At the 19th National Family Medicine Congress, these rates were 71.1% (n=79) and 28.9% (n=32), respectively. Although the rate of verbal presentations was higher in the online congress, there was no significant difference between the congresses regarding the types of papers (p=0.060).

The mean number of authors of the papers was 3 ±1.64 (3.05±1.77 for verbal presentations, 2.90±1.37 for poster presentations). In 93.2% (n=248) of the papers, sampling was not done, or it was not stated that it was done. All the 18 papers stated to be sample calculations were verbal.

When all papers were included, a significant difference was found between the mean STROBE Checklist: conference abstracts score of verbal and poster presentations in both reviewers (Table 2) (p<0.001). Presentation scores according to the congresses demonstrated no significant difference between the 18th and 19th National Family Medicine Congresses in the same groups (Table 3).

Table 2. *Comparison of scores of verbal and poster presentations according to referees*

Umpire	Paper type	Average ±Std. Deviation	Min	Max	p
Referee 1	Verbal presentation	6,03±1,73	1	10	<0,001
	Poster presentation	3,80±1,99	0	8	
Referee 2	Verbal presentation	5,86±1,69	1	9	<0,001
	Poster presentation	4,02±1,95	0	8	

Table 3. *Comparison of paper scores according to congresses*

Referee	Convention	Paper type	Points	p
Referee 1	18. NFMC	Verbal	5,94±1,66	0,867
	19. NFMC		6,15±1,80	
	18. NFMC	Poster	3,87±2,11	0,949
	19. NFMC		3,66±1,75	
Referee 2	18. NFMC	Verbal	5,63±1,62	0,275
	19. NFMC		6,13±1,74	
	18. NFMC	Poster	3,90±2,06	0,809
	19. NFMC		4,25±1,74	

*NFMC: National Family Medicine Congress

DISCUSSION

Our results showed that the online congress format of the COVID-19 pandemic did not affect the reporting quality of the papers. However, both congresses have the potential to improve reporting quality. Chief among these improvements are items such as writing a more detailed method section and stating the study's design to help the reader better understand it.

Our results show that the reporting quality of the papers presented in both congresses is generally medium-low. The number of papers that meet the STROBE Checklist: conference abstracts criteria is minimal. These results are consistent with previous studies and may explain the low publication rate of congress papers in peer-reviewed journals. [7,8] Furthermore, these results highlight the importance of paper reporting quality. Although the quality of reporting does not directly indicate the quality of the study, when the literature is examined, it is seen that studies with better methodology are more accepted. [9] Therefore, increasing the compliance of the articles with the criteria will indirectly increase their quality.

In our study, regardless of the congress, the score of verbal presentations was significantly higher than poster presentations in both reviewers. This difference may be because authors often send their more trusted works as verbal presentations, and congress committees generally accept papers of higher scientific value as verbal presentations. When the literature is examined, it is seen that similar results are obtained. In general, it is seen that

verbal presentations are written more appropriately than poster presentations and that the publication rates are higher in reviewed journals. [7,8,10,11]

Item 11 had the highest score in verbal presentations (11. General interpretation of study results). This was followed by Item 4 (4. Specific objectives or hypothesis). The item with the lowest score was Item 1 (Describing the study design in commonly used terms in Title 1). In a study by Yoon et al., in which the abstracts presented at the 2005 and 2008 World Congress for the Prevention of Sports Injuries were examined, the items with the highest score were similarly related to the result and purpose part.[9] Only 10.4% of the papers got points from the title. These results reveal that the conclusion and purpose parts are better fulfilled in reporting observational studies, but the title part needs to be considered sufficiently. The title part of the verbal presentations in the congresses we examined was neglected. The headline is the part that gives the reader the first impression. The title should convey the main idea and method of the study to the reader. According to the STROBE criteria, the title should state the type of study (cohort, case-control, or cross-sectional), characteristics of the participants (age, gender, disease status), and critical variables or hypotheses of the study. In this way, the reader can more easily understand and evaluate the study's purpose, method, and results.

In the poster presentations, the items with the highest scores were the 11th and 4th items, and the lowest was the 8th item (8th, explaining the statistical methods, including those used to control surprises). The fact that the items with the highest scores in both verbal and poster presentations are the 11th and 4th items may indicate that these items attract the readers' attention and are given more importance by the researchers as they summarize the main findings and aims of the study. The fact that the explanation of statistical methods is the least rated item in poster presentations may be related to the fact that poster presentations are more visual and short presentation style. In poster presentations, it is crucial to convey the main points and findings of the study to the reader easily and attractively. Therefore, while the title is more critical in poster papers, the statistical methods part is less detailed or can be skipped. However, the statistical methods part is also essential for the quality and accuracy of the study. Therefore, statistical methods should be explained according to the STROBE Checklist: conference abstracts criteria in poster presentations.

Limitations of the Study

Our study has some limitations. First, only two congresses were included in the study. It may be considered to increase the number of included face-to-face and online congresses. Secondly, although the names of the paper owners are concealed by a third party, in some cases, the title, content, material, and method of the papers can give a great idea about the paper's owner. For this reason, it cannot be said that possible bias has been avoided by one hundred percent. However, no statistically significant difference was found between the reviewers regarding reviewer STROBE Checklist: conference abstract scores. This result shows that the reviewers involved in the evaluation process make evaluations by using a similar criterion and adhering to the same criteria while scoring. This may mean the reviewers' evaluations can be more objective and reliable. Third, the study was conducted only for the National Family Medicine Congress. Different results may be obtained in different congresses.

Strengths of the Study

Although there are similar studies in the literature about the presentation of STROBE Checklist: conference abstracts scoring, as far as we can see, no similar study has been found in the literature comparing online and face-to-face congresses. Similarly, no similar study was found in family medicine congresses. Our study is a study that can contribute to the literature in this respect.

CONCLUSION

As a result, scientific congresses are essential platforms that increase interdisciplinary communication and information sharing. Improving the quality of paper reporting allows the studies to be understood correctly and the results to be interpreted more accurately. On the other hand, a methodologically relevant article is more likely to be published in scientific journals. For this reason, the compliance of the papers presented in congresses with specific criteria and their publication in peer-reviewed journals should be encouraged. In addition, it should be remembered that online congresses are essential tools for information sharing and professional development. However, disadvantages such as live interaction and reduced networking opportunities should also be considered.

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Evaluation Of Nutrition During Influence In Children With Atopic Dermatitis
Atopik Dermatitli Çocuklarda Süt Çocukluğu Döneminde Beslenmenin Değerlendirilmesi

Aslı GÜÇLÜ[1], Ümit AYDOĞAN[1], Yusuf Çetin DOĞANER[1], Ahmet BOLAT[2]

Abstract

Objective: Atopic dermatitis (AD); It is an inflammatory skin disease with chronic, itchy, recurrent attacks. Allergy-related diseases such as AD, asthma and allergic rhinoconjunctivitis are thought to be related to the changing immune system development in infancy. From the neonatal period, nutrition affects the development of the immune system and affects the health of the individual in the long term. In this study, it was aimed to evaluate the rates of feeding with breast milk and/or formula in the first 6 months of life in children diagnosed with AD.

Materials and Methods: The study was carried out with the parents of children who applied to Gulhane Training and Research Hospital Pediatric Health and Diseases Polyclinic and were diagnosed with AD. A total of 75 parents were included in the study. A questionnaire containing information such as the sociodemographic characteristics of the participants and the children, their backgrounds, diet for the first 6 months, and the mother's diet during the lactation period, which was prepared by the researchers after obtaining the written consent of the parents, was applied. The data were analyzed with the SPSS program with appropriate tests.

Results: In the first 6 months, 73.3% of the children with AD whose parents were included in the study were fed only with breast milk, 24% with breast milk and formula, and the remaining 2.7% with only formula. When the relationship between the age at diagnosis of AD and the sociodemographic characteristics of the children with AD, family history, feeding patterns in the first 6 months, diet of the mother during breastfeeding and medical history was examined, it was observed that there was no statistically significant relationship ($p>0.05$).

Conclusion: In our study, in which the nutrition patterns of patients diagnosed with AD were examined in the first 6 months of life, it was determined that the patients were mostly fed only with breast milk. There was no significant difference between the age at diagnosis of AD and the diet in the first 6 months of life and the mother's diet during the lactation period.

Key words: Atopic dermatitis, infancy, nutrition, breast milk

Özet

Giriş: Atopik dermatit (AD); kronik, kaşıntılı, tekrarlayıcı ataklarla giden inflamatuar bir cilt hastalığıdır. AD, astım ve alerjik rinokonjonktivit gibi alerjiye bağlı hastalıkların bebeklik döneminde değişen immün sistem gelişimiyle ilgili olduğu düşünülmektedir. Yenidoğan döneminden itibaren beslenme immun sistem gelişimini etkileyerek, bireyin sağlığını uzun vadede etkilemektedir.[1] Bu çalışmamızda, AD tanısı alan çocuklarda hayatın ilk 6 aylık sürecinde anne sütü ve/veya formül mama ile beslenme oranlarının değerlendirmesi amaçlandı.

Yöntem: Çalışma, Gülhane Eğitim ve Araştırma Hastanesi Çocuk Sağlığı ve Hastalıkları Polikliniği'ne müracaat eden ve AD tanısı konulan çocukların ebeveynleri ile yapılmıştır. Çalışmaya toplam 75 ebeveyn dahil edilmiştir. Ebeveynlere yazılı onamları alınarak, araştırmacılar tarafından hazırlanılan, katılımcıların ve çocukların sosyodemografik özellikleri, özgeçmişi, ilk 6 ay beslenme şekli, annenin laktasyon dönemindeki beslenme şekli gibi bilgileri içeren anket formu uygulanmıştır. Veriler SPSS programı ile uygun testlerle analiz edilmiştir.

Bulgular: Ebeveynleri çalışmaya dahil edilen AD tanılı çocukların ilk 6 ayda %73,3'ü sadece anne sütü ile, %24'ü anne sütü ve formül mama ile geri kalan %2,7 çocuk ise sadece formül mama ile beslendiği saptanmıştır. AD tanı yaşı ile AD tanılı çocukların sosyodemografik özellikleri, soy geçmişi, ilk 6 ay beslenme şekilleri, emzirme döneminde annenin beslenme şekli ve tıbbi özgeçmişleri arasındaki fark incelendiğinde istatistiksel olarak anlamlı fark olmadığı gözlenmiştir ($p>0,05$).

Sonuç: AD tanısı alan hastaların hayatın ilk 6 aylık döneminde beslenme şekillerinin incelendiği çalışmamızda hastaların en fazla sadece anne sütü ile beslendiği tespit edilmiştir. AD tanı yaşı ile hayatın ilk 6 ayında beslenme şekli ve annenin laktasyon döneminde beslenme biçimi arasında anlamlı fark bulunmamıştır.

Anahtar kelimeler: Atopik dermatit, süt çocukluğu, beslenme, anne sütü

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Giriş

Atopik dermatit(AD); kronik, kaşıntılı, tekrarlayıcı ataklarla giden sıklıkla çocukluk döneminde görülen inflamatuar bir cilt hastalığıdır. AD etiolojisinde genetik, immünolojik ve çevresel faktörler rol oynamaktadır.[2] Anne sütünün immün sistem hücreleri, immünglobulin ve lizozimler gibi moleküller aracılığıyla patojenlere karşı immün savunma mekanizmasında etkin rol oynadığı gösterilmiştir. Anne sütünün, tip 1 diabetes mellitus, ülseratif kolit ve çölyak hastalığı gibi immün sistemle ilgili hastalıkların gelişim riskini azalttığı saptanmıştır.[3] Bütün bunlar anne sütü ile beslenmenin, bağışıklık sistemi üzerindeki etkisinin uzun süreli sonuçları olduğunu göstermektedir. AD, astım ve alerjik rinokonjonktivit gibi alerjiye bağlı hastalıkların da bebeklik döneminde değişen immün sistem gelişiminin bir sonucu olduğu düşünülmektedir, ancak anne sütüyle beslenme ile bu hastalıklar arasındaki ilişki tartışmalıdır. AD ile anne sütü ilişkisiyle ilgili önemli tartışmalar vardır, çünkü klinik deneyimlerde hem olumlu yönde hem de olumsuz yönde etkileri literatürde bildirilmiştir. Yapılan bir çalışmalarda anne sütü içeriğindeki düşük kaprilat ve asetat miktarının, erken çocukluk döneminde AD için risk faktörü olduğu saptanmıştır.[4] Başka bir çalışmada anne sütü içeriğindeki yüksek IL-1β oranının AD riski yüksek olan bebeklerde AD gelişimine karşı koruyucu olduğu gösterilmiştir.[5] Doğumdan sonra 4 ay anne sütü ile beslenmenin AD gelişimine karşı önleyici etkisi olmadığı da başka bir araştırmada saptanmıştır.[6] Yapılan başka bir araştırmada anne sütü ile beslenen bebeklerin atopik dermatit riskinin yükseldiği fakat bu yükselmenin istatistiksel olarak anlamlı olmadığı gösterilmiştir.[7]

Bu çalışmada, AD tanısı alan çocuklarda hayatın ilk 6 aylık sürecinde anne sütü ve/veya formül mama ile beslenme oranlarının değerlendirmesi amaçlandı.

Yöntem

Çalışmamız, Gülhane Bilimsel Araştırmalar etik kurulunun 25.02.2021 tarihinde 2021-27 karar numaralı izni alındıktan sonra 01.03.2021- 31.08.2022 tarihleri arasında Gülhane Eğitim ve Araştırma Hastanesi Çocuk Sağlığı ve Hastalıkları Polikliniğine ayaktan başvuran ve Çocuk Sağlığı ve Hastalıkları uzmanı tarafından AD tanısı konulan 0-18 yaş arasındaki hastaların ebeveynlerine anket uygulanarak yapılan kesitsel bir çalışmadır. Bilgilendirilmiş gönüllü olur formu ile yazılı olarak onam vererek çalışmaya katılmayı kabul eden gönüllülere, araştırmacılar tarafından güncel literatürler rehberliğinde oluşturulmuş katılımcıların ve çocukların sosyodemografik özellikleri, özgeçmişi, AD ile ilgili tıbbi öykülerini, ilk 6 ay beslenme şekli, annenin laktasyon dönemindeki beslenme şekli gibi bilgiler içeren 36 soruluk bir anket formu uygulanmıştır.

EpiİnfoprogramıileülkemizdeADinsidansı%4,9 baz alınarak[2] örneklem büyüklüğü hesaplandığında en az 73 hastanın ebeveyninin çalışmaya dahil edilmesi gerektiği tespit edilmiştir. Araştırmanın evrenini Gülhane Eğitim ve Araştırma Hastanesi Çocuk Sağlığı ve Hastalıkları Polikliniği'ne başvuran AD tanısı almış hastaların ebeveynlerioluşturmaktadır. Çalışmaya katılmayı kabul eden tüm AD tanılı çocukların ebeveynleri örneklem olarak kabuledilmiştir.

Çalışmaya Çocuk Sağlığı ve Hastalıkları Polikliniği'nde ayaktan hizmet alan, çalışmaya katılmayı gönüllü olarak kabul eden 84 kişi alınmıştır. Anket formunda eksiklikler bulunan 9 kişi çalışmadan çıkarılmıştır. Sonuç olarak toplamda 75 hastanın ebeveyni ile çalışma tamamlanmıştır.

Katılımcıların AD tanılı çocukları ilk 6 aya kadar AD tanısı alan ve 6. ay ve daha sonra AD tanısı alanlar olarak iki gruba ayrılarak analiz edilmiştir. Normal dağılım gösteren veriler ortalama ± standart sapma, normal dağılım göstermeyen veriler ise ortanca değeri ile % 25 - % 75 çeyrekler arası değerleri şeklinde verilmiştir. Verilerin analizi için SPSS 22 (SPSS Inc., Chicago, IL, USA) programı kullanılmıştır. Kategorik verilerindeğerlendirilmesinde Pearson Ki-kare, FisherExact testi ve Yates' Ki-kare testleri kullanılmıştır. Tüm analizlerdeistatistik anlamlılık için eşik değer $p<0,05$ olarak kabul edilmiştir.

Bulgular

Ebeveynleri çalışmaya katılan çocukların ortalama yaşı 4,2±5,1 ve çocukların %54,7'si erkekti. AD çocukların boy persentil ortanca değerleri 50,3 (25,0-90,0) cm; kilo persentil ortanca değerleri 75,3 (25-90) kg idi.

Çalışmaya katılan ebeveynlerinin ortalama yaşı 34,6±7,5'tir. Katılımcıların %4,0'ı (n=3) ilköğretim, %5,3'ü (n=4) ortaöğrenim, %5,3'ü (n=4) lise, %85,3'ü (n=64) üniversite mezunu idi. Katılımcıların %2,7'sinin (n=2) geliri giderinden az, %44,0'ının (n=33) geliri giderine denk, %53,3'ünün (n=40) geliri giderinden fazla idi.Katılımcıların %93,3'ü (n=70) sigara,%94,7'si (n=71) alkol kullanmıyordu. AD tanılı çocukların anneleriningebelik döneminde sigara içme oranlarının %2,7 (n=2) olduğu saptanmıştır. AD tanılı çocukların ebeveyn dışıbakım verenlerinde sigara içme oranı %13,3'tür (n=10).

Ebeveynleri çalışmaya dahil edilen AD tanılı çocukların AD tanı yaşı ortanca değeri 4,0 (3,0-7,0) ay olarak saptanmıştır. İlk 6 aya kadar tanı alanların oranı %56,0 (n=42)'dır. AD tanısı için katılımcıların %49,3'ü(n=37)

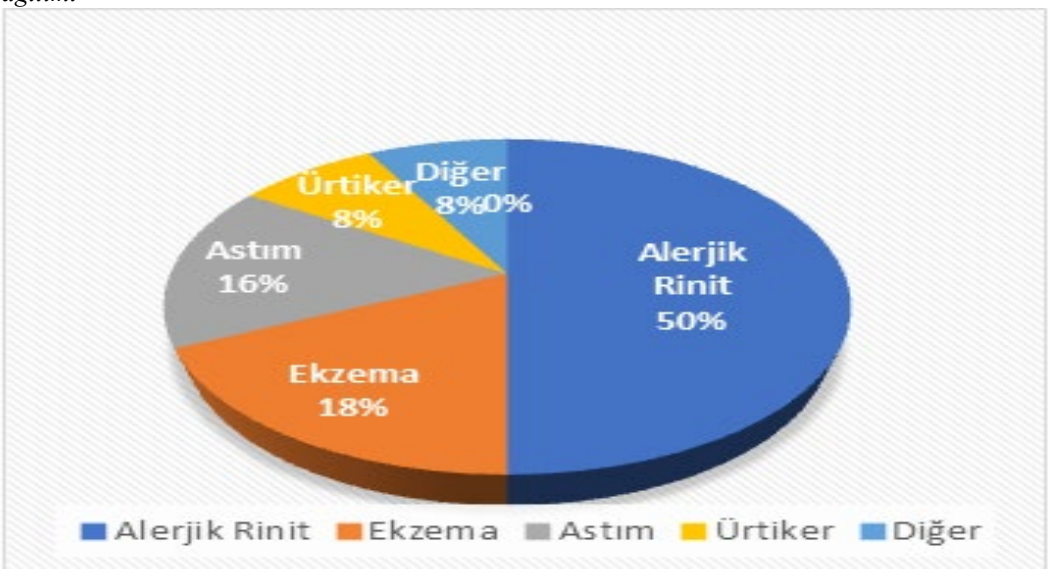
Çocuk Sağlığı ve Hastalıkları uzmanına, %24,0'ı (n=18) Çocuk İmmünoloji ve Alerji uzmanına, %18,7'si (n=14) Dermatoloji uzmanına, %5,3'ü (n=4) Aile Hekimine, geri kalan %2,6'sı (n=2) diğer branşlara müracaat etmiştir.
AD tanılı çocukların ilk 6 ayda %73,3'ünün (n=55) sadece anne sütü ile beslendiği, 24,0'ının (n=18) anne sütü ve formül mama ile beslendiği, geri kalan %2,7'sinin (n=2) ise sadece formül mama ile beslendiği saptanmıştır. AD tanılı çocukların toplam anne sütü aldıkları ay ortanca değeri 11,0 (5,0-21,0) ay olarak saptanmıştır. Ek gıdaya başlanan ay ortalaması 5,6±0,6 olarak saptanmıştır.
Katılımcıların %13,3'ünün (n=10) evde evcil hayvanıyla birlikte yaşadığı, katılımcıların %5,3'ünün (n=4) kedi ile yaşadığı, %5,3'ünün (n=4) kuş ile yaşadığı saptanmıştır. Katılımcıların %37,3'ünün (n=28) ailesinde AD tanılı başka birey olduğu saptanmıştır. Katılımcıların %58,6'sının (n=44) daha önce astım, alerjik rinit, ekzema, ilaç veya besin alerjisi tanısı aldığı saptanmıştır. Katılımcıların %44,0'ı (n=33) alerjik rinit semptomları yaşadığını belirtti. Katılımcıların %50,7'si (n=38) ailede AD dışında alerjik hastalık tanısı alan birilerinin olduğunu belirtti (Tablo 1), (Şekil 1).

Tablo 1. *Katılımcıların ve ailelerinin atopik hastalık dağılımları*

Parametreler		n (%)
Ailede AD tanılı başka birey varlığı	Var	28 (37,3)
	Yok	47 (62,7)
Katılımcılarda atopik hastalık (astım, alerjik rinit, ekzema, ilaç-besin allerjisi) varlığı	Alerjik Rinit	10 (13,3)
	Ekzema	10 (13,3)
	İlaç-Besin alerjisi	5 (6,6)
	Diğer Atopik hastalıklar	19 (25,3)
	Yok	31(41,3)
Katılımcılarda alerjik rinit semptomları varlığı	Var	33 (44,0)
	Yok	42 (56,0)
AD tanılı çocuklarda komorbid hastalık varlığı	Astım	5 (6,6)
	Besin alerjisi	5 (6,6)
	Diğer Komorbid Hastalık	5 (6,6)
	Yok	60 (80,0)
Katılımcıların ailelerinde atopik hastalık varlığı*	Alerjik Rinit	25 (33,3)
	Ekzema	9 (12,0)
	Astım	8 (10,6)
	Diğer atopik hastalıklar	7 (9,3)
	Yok	37 (49,3)

*Bazı kişilerde birden fazla hastalık mevcut olduğu için toplam değer değişiklik göstermiştir.

Şekil 1.*Ailesinde alerjik hastalığa sahip birey olduğunu belirten katılımcıların, ailelerinde bulunan alerjik hastalıkların dağılımı*



AD tanılı çocukların %20,0'ında (n=15) AD dışında tanı konulan başka bir hastalığı olduğu (en sık astım ve besin alerjisi) saptanmıştır. Ebeveynleri çalışmaya dahil edilen AD'li çocukların %22,7'si (n=17) yaşamın ilk 4 ayında antibiyotik kullanmıştır. Kullanılan antibiyotik en sık olarak amoksisilin klavunattır. AD tanılı çocukların %98,7'sine (n=74) sağlık bakanlığının aşı takvimine uygun şekilde tam olarak aşı uygulandığı saptanmıştır.
Emzirme dönemi boyunca haftalık süt ve süt ürünü (yoğurt, peynir, kaymak, tereyağı vb.) ve yumurta tüketme sıklığı sorgulandığında %60,0'ı (n=45) her gün tükettiğini ifade etmiştir. Emzirme dönemi boyunca haftalık soya veya yer fıstığı tüketme sıklığı sorgulandığında %60,0'ı (n=45) hiç tüketmediğini ifade etmiştir.
AD tanı yaşı ile AD tanılı çocukların sosyodemografik özellikleri, soy geçmişi, ilk 6 ay beslenme şekilleri, emzirme döneminde annenin beslenme şekli ve tıbbi özgeçmişleri arasındaki fark incelendiğinde istatistiksel olarak anlamlı fark olmadığı gözlenmiştir (p>0,05) (Tablo 2).

Tablo 2. *Katılımcıların AD Tanılı Çocuklarının Sosyodemografik Özellikleri ve Tıbbi Durumları ile Çocukların AD Tanı Yaşı Arasındaki Farkın İncelenmesi*

Parametreler		**6. Aya Kadar Tanı Alanlar**	**6 Ay ve Sonrasında Tanı Alanlar**	**p***
		n (%)	n (%)	
Cinsiyet	Kız	21 (61,8)	13 (38,2)	0,49
	Erkek	21 (51,2)	20 (48,8)	
İlk 6 ayda beslenme şekli	Sadece anne sütü	32 (58,2)	23 (41,8)	0,71
	Diğer	10 (50,0)	10 (50,0)	
İlk 4 ayda antibiyotik kullanımı durumu	Var	8 (47,1)	9 (52,9)	0,57
	Yok	34 (58,6)	24 (41,4)	
Çocukta başka alerjik hastalık varlığı	Var	11 (45,8)	13 (54,2)	0,33
	Yok	31 (60,8)	20 (39,2)	
Hastaneye yatış öyküsü	Var	7 (43,8)	9 (56,3)	0,40
	Yok	35 (59,3)	24 (40,7)	
Ailede AD tanılı birey varlığı	Var	14 (50,0)	14 (50,0)	0,57
	Yok	28 (59,6)	19 (40,4)	
Ebeveynde alerjik hastalık varlığı	Var	22 (50,0)	22 (50,0)	0,31
	Yok	20 (64,5)	11 (35,5)	
Ebeveynde alerjik rinit semptomları varlığı	Var	23 (54,8)	19 (45,2)	0,99
	Yok	19 (57,6)	14 (42,4)	
Ailede alerjik hastalık tanılı birey	Var	18 (47,4)	20 (52,6)	0,19
	Yok	24 (64,9)	13 (35,1)	
Evcil hayvan varlığı	Var	3 (30,0)	7 (70,0)	0,09
	Yok	39 (60,0)	26 (40,0)	
Emzirme döneminde annenin beslenmede süt, süt ürünü yumurta tüketimi	Haftanın her günü tüketenler	24 (53,3)	21 (46,7)	0,74
	Diğer	18 (60,0)	12 (40,0)	
Emzirme döneminde annenin beslenmede soya ve yer fıstığı tüketimi	Beslenmesinde hiç tüketmeyenler	26 (57,8)	19 (42,2)	0,88
	Diğer	16 (53,3)	14 (46,7)	
Ebeveyn veya bakım verenin sigara içme durumu	İçiyor	13 (76,5)	4 (23,5)	0,09
	İçmiyor	29 (50,0)	29 (50,0)	

Tartışma

AD tanısı alan hastaların hayatın ilk 6 aylık döneminde beslenme şekillerinin incelendiği çalışmamızda hastaların yarısından fazlasının sadece anne sütü ile beslendiği ve çok az bir kısmının sadece formül mama ile beslendiği tespit edilmiştir.

Çalışmamızda erken başlangıçlı (ilk 6 ay) AD ve ilk 6 ay beslenme şekli arasında anlamlı fark bulunmamıştır. 2001 yılında yayınlanan bir meta analizde ailesinde atopi öyküsü olan çocuklarda, yaşamın ilk 3 ayında sadece anne sütü ile beslenmenin düşük AD insidansı ile ilişkili olduğu sonucu bildirilmiştir.[8] Ailede atopi öyküsü olan ve olmayan çocukların atopi oranlarının karşılaştırıldığı bir çalışmada sadece anne sütü ile beslenmenin her iki grupta da atopiye karşı koruyucu olduğu bulunmuştur.[9] Atopik hastalık tanısı olan 38 annenin yenidoğan bebeklerinin 1 yıl süreyle takip edildiği ve anne sütü örneklerinin incelendiği bir çalışmada anne sütündeki sCD14 ve PGE2 düzeyleriyle ilişkili olarak anne sütü ile beslenmenin bebeğin AD tanısı ile ilişkili olabileceği saptanırken, yaklaşık 1000 çocuğun dahil edildiği bir kohort çalışmasında ise anne sütündeki sCD14 konsantrasyonu ile AD arasında herhangi bir ilişki bulunmamıştır.[10,11] 2009 yılında yayınlanan bir meta analizde anne sütüyle beslenme geleneksel formül mama ile beslenmeyle karşılaştırıldığında AD riskinde azalmayla ilişkilendirilmiştir.[12]Yapılan meta analiz çalışmasında ayrıca ailesinde atopi öyküsü olan çocuklarda yaşamın ilk 3 ayında sadece anne sütü ile beslenme formüle edilmiş sütle beslenmeye göre, çocuklukta daha düşük AD insidansı ile ilişkili bulunmuştur.[8] Japonya'da yapılan bir çalışma emzirme ile AD riskinin formülize sütle beslenmeye göre arttığı sonucuna ulaşılmıştır.[13] Bizim çalışmamızın sonuçları literatürdeki bazı çalışmalarla uyum göstermemektedir. Bunun nedeni anne sütü ve AD ilişkisi hakkında literatürde çelişkili sonuçların bulunması olabilir. JAMA dergisinde yayınlanan bir kohort çalışmasında, çalışmamızla uyumlu olarak erken başlangıçlı ve geç başlangıçlı AD fenotipinin ilişkili olduğu faktörler incelenmiş, anne sütü ile beslenilen ay ile atopik dermatit başlangıç fenotipi arasında ilişkisi bulunamamıştır.[14]

Çalışmamızda AD tanılı çocukların ebeveynlerinin eğitim düzeyi incelendiğinde %85,3'ünün üniversite mezunu olduğu, gelir durumları incelendiğinde %53,3'ünün de gelirinin giderinden daha fazla olduğu saptanmıştır. Çalışmamızla uyumlu olarak; sosyoekonomik düzeyin AD, alerjik rinit ve astım üzerindeki etkisi araştırıldığı bir kohort çalışmasında AD'nin yüksek sosyoekonomik düzeyle ilişkili olduğu bulunmuştur.[15] Güney Kore'de 2013 yılında yapılan başka bir çalışmada da çalışmamızla uyumlu olarak AD prevalansının yüksek sosyoekonomik düzey, yüksek ebeveyn eğitim düzeyi ve kentsel yaşam ile ilişkili olduğu saptanmıştır.[16]

Çalışmamızda AD başlangıç yaşının ailede AD tanılı ya da alerjik tanılı birey olması arasında anlamlı fark olmadığı görülmüştür. 2019 yılında yayınlanan bir makalede genetik faktörlerin ve ailede atopi öyküsünün erken başlangıçlı AD ile ilişkili olduğu görülmüştür.[17] Bizim çalışmamızın, literatürle uyumlu olmama sebebi örneklem sayısının az olması olabilir.

Çalışmamızda AD başlangıç yaşı ile ev ortamında sigara dumanı maruziyeti arasında anlamlı fark bulunmamıştır. 2011 yılında yayınlanan 469 katılımcı ile yapılan bir çalışmada tütün dumanına maruziyetin yaşamın ilk yılında AD gelişme riskini 2 katına çıkardığı gösterilmiştir.[18]Almanya'da yapılan kesitsel bir çalışmada tütün dumanı maruziyeti ile AD arasında bir ilişki bulunamamıştır.[19] 2016 yılında yayınlanan bir meta analizde AD'nin sigara dumanı maruziyetiyle ilişkili olduğu saptanmıştır.[20] Çalışma sonuçlarımız literatürdeki bazı çalışmalarla uyum göstermemektedir. Bunun sebebi AD ile sigara maruziyeti ilişkisi hakkında tartışmalı sonuçların mevcudiyeti ve çalışma grubu içinde ailede sigara maruziyetine uğrayan AD tanılı çocuk sayısının az olması olabilir.

Annenin gebelik döneminde çiftlik hayvanlarıyla temasının yaşamın ilk yıllarında AD riskini azalttığı görülmüştür. Ancak literatüde evcil hayvanlarla ilgili çelişkili sonuçlar mevcuttur. Genellikle köpek maruziyetinin yaşamın erken dönemlerinde AD riskini azaltırken, kedi maruziyetinin AD riskini arttırabileceği yönünde kanaat hakimdir.[21] 2009 yılında yayınlanan 606 çocuk ile yapılan bir çalışmada prick testi ile kedi antijenine duyarlanma görülen çocuklarla AD, astım ve alerjik rinit arasında bir ilişki olduğu görülmüştür.[22] 2020 yılında yayınlanan bir kohort çalışmasında yaşamın ilk yılında kedi ile birlikte yaşayanlarda, kedi ile birlikte yaşamayanlara göre ilk 5 yıl içinde AD gelişiminin daha az olduğu görülmüştür; köpek ile birlikte yaşamanın ise astım ve alerjik rinit riskini azaltırken, AD riskiyle ilişkili olmadığı bulunmuştur.[23] Çalışma sonuçlarımızın literatürle uyum göstermemesinin sebebi çalışma grubu içinde evinde evcil hayvanı olan AD tanılı çocuk sayısının az olması olabilir.

Çalışmamızda AD'li çocukların annelerinin laktasyon dönemindeki beslenme tipi ile AD tanı yaşı arasında anlamlı fark bulunmamıştır. 2009-2014 yılları arasında yapılan prospektif bir kohort çalışmasında, kadınların gebelik döneminde beslenmeleri ve çocuklarında AD, astım ve alerjik rinit gelişimi arasındaki ilişki araştırılmış ve sonuç olarak gebelik döneminde diyette yoğurt ve sebze tüketimi çocukta alerjik hastalık gelişimini azaltırken; patates kızartması, pirinç, soğuk tahıl, kırmızı et ve meyve suyu tüketiminin alerjik hastalık gelişimini arttırdığı saptanmıştır.[24] 2020 yılında yayınlanan bir meta analizde ise gebelik döneminde yumurta tüketiminin AD'ye karşı koruyucu olduğu, diğer çalışmada olduğu gibi sebze tüketiminin koruyucu, kırmızı et tüketiminin ise risk faktörü olduğu saptanmıştır.[25] 2014 yılında yayınlanan bir meta analizde emzirme döneminde maternal antijenden kaçınmanın, ilk 18 ay boyunca AD insidansı üzerinde önemli bir koruyucu etkisi

gözlemlemediği fakat AD tanısı olan bebeklerin emziren annelerini kapsayan bir çalışmada, anne diyetinin ekzema şiddetinde azalma ile ilişkili olduğunu bulunmuştur.[26] 2022 yılında yayınlanan bir meta analizde AD ile emzirme döneminde anne diyeti arasındaki ilişki hakkında çelişkili sonuçlar olduğu için bu konuda daha fazla çalışmaya ihtiyaç olduğu belirtilmiştir.[27]2014 yılında yayınlanan bir meta analiz sonucunda emzirme döneminde anne diyetinde Akdeniz tipi beslenme, meyve sebze ve balık ve D vitamini takviyelerinin çocukta atopik hastalık riskini azalttığını; laktasyon döneminde maternal diyette yer fıstığı, fındık gibi kuruyemişler, margarin ve hazır gıdaların ise çocukta atopik hastalık riskini arttırdığı saptanmıştır.[28] 2011 yılında yayınlanan Japonya'da AD lezyonu olan ve sadece anne sütü ile beslenen 92 çocukla yapılan bir çalışmada, bazı gıdaların (çikolata, yoğurt, soya sosu ve miso çorbası) anne diyetinden çıkarıldığında ekzema şiddetinin azaldığını ve tekrar diyete eklendiğinde ekzemanın tekrarladığı tespit edilmiştir.[29] Çalışmamızın sonuçları literatürle uyum göstermemesinin nedeni örneklem grubunun küçük olması ve annelerden ayrıntılı beslenme günlüğü verilerinin alınmamış olması olabilir.

Çalışmanın tek merkezli olması, üçüncü basamak sağlık hizmeti veren bir kurumda gerçekleştirilmesi ve örneklem sayısının az olması çalışmamızın kısıtlılıklarındandır. AD ile süt çocukluğu döneminde beslenmenin araştırıldığıTürkiye'de yapılan çalışma sayısının az olması ve anketlerin yüz yüze görüşme yöntemiyle yapılmasıçalışmamızın güçlü yönlerindendir.

Sonuç

AD tanılı çocukların ilk 6 aylık süreçte beslenme özellikleri incelendiğinde hastaların yaklaşık dörtte üçünün sadece anne sütü ile beslendiği saptanmıştır. Anne sütü ile beslenme oranlarının arttırılması için halk bu konuda bilgilendirilmeli ve farkındalığın arttırılmasına yönelik çalışmalar yapılmalıdır.

Çalışmamızda ailenin eğitim ve gelir durumu, ailede AD veya alerjik hastalık öyküsü, daha önce geçirilmiş hastalıklar, AD'ye eşlik eden komorbid hastalıklar, hastaneye yatış öyküsü ve ilk 4 ayda antibiyotik maruziyeti gibi tıbbi özgeçmiş, ilk 6 aylık dönemde sadece anne sütü, sadece formül mama veya karma beslenme durumu, annenin laktasyon dönemindeki beslenme alışkanlıkları, aile içi sigara dumanı maruziyeti ve evcil hayvanlarla ev içi temas durumu gibi faktörlerin AD tanı yaşını etkilemediği, erken başlangıçlı AD ile anlamlı fark olmadığı sonucuna ulaşılmıştır.

Gebelik ve laktasyon dönemindeki annenin beslenmesinin çocukta alerjik hastalık gelişimi ile ilişkisinin araştırılması hakkında literatürde yeterli çalışma olmadığı için başka bir araştırma konusunu gündeme getirebilir.

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Yazarlar herhangi bir çıkar çatışması olmadığını beyan etmişlerdir.

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Correction Table

Vol	Number	Page number	Error	Correction
17	2	210	Eyler TOKER	Eylem TOKER