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TÜRKİYE SAĞLIK ARAŞTIRMALARI DERGİSİ

COVID-19 KAYNAKLI ÖLÜMLERİNİN ÇEŞİTLİ DEĞİŞKENLERE GÖRE İNCELENMESİ

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Anahtar Kelimeler

- COVID-19 kaynaklı ölümler,
- Risk faktörleri,
- Sağlık davranışları,
- Ölüm nedenleri.

Makale Hakkında

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ÖZET

Amaç: Bu çalışmada, COVID-19 nedeniyle hayatını kaybeden bireylerin çeşitli sağlık davranışlarının, demografik verilerinin ve COVID-19'a yönelik çeşitli özelliklerinin incelenmesi amaçlanmaktadır. Çalışma, salgının etkilerini anlamak ve benzer durumların yönetilmesine yönelik önlemler geliştirmek açısından büyük önem taşımaktadır.

Yöntem: Çalışma kapsamında COVID-19 nedeniyle hayatını kaybeden 233 kişinin verisine ulaşılmıştır. Verilerin toplanmasında araştırmacılar tarafından oluşturulan 16 soruluk bir anket formu kullanılmıştır. Veriler 10.09.2022-23.03.2023 tarihleri arasında toplanmıştır. Verilerin analiz edilmesinde tanımlayıcı ve crosstabs istatistikleri kullanılmıştır.

Bulgular: COVID-19 nedeniyle hayatını kaybeden bireylerin %51,5'inin kadın olduğu ve %49,8'i 65 yaş ve üstü olduğu belirlenmiştir. Katılımcıların %15'i sürekli kullandığı ilaçlarının olduğu ve %37,8'inin kronik rahatsızlığı olduğu tespit edilmiştir. Katılımcıların %63,1'nin COVID-19 aşısı olduğu ve %41,2'sinin yüksek düzeyde COVID-19'a yakalanma korkusu yaşadığı görülmüştür. Kadınlar erkeklere göre daha fazla COVID-19'a karşı olacak şekilde, bitkisel ürün kullandıkları, daha yüksek COVID-19 yakalanma korkusu yaşadıkları ve COVID-19 nedeniyle yoğun bakıma yatma oranlarının daha yüksek olduğu görülmektedir.

Sonuç: COVID-19 korkusu ile sağlık davranışları arasında ilişki olduğu, yaş, cinsiyet ve ekonomik durum gibi demografik faktörlerin COVID-19 ile ilişkili deneyimler üzerinde etkili olduğu belirlenmiştir. Bu çalışma, salgının insanlar üzerindeki etkilerini değerlendirmek ve gelecekteki benzer durumlar için hazırlıklı olmak adına önemli bir adımdır. Uzun vadeli olarak, sağlık sistemlerinin daha dirençli hale getirilmesi ve pandemi gibi olağanüstü durumlarla daha etkin bir şekilde başa çıkabilmesi için stratejik yatırımların yapılması gerekmektedir. Bu şekilde, benzer krizlerle karşılaşıldığında, sağlık hizmetlerinin sürdürülebilirliği ve toplumun sağlığı daha iyi korunabilir.

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ANALYSIS OF COVID-19-RELATED DEATHS ACCORDING TO VARIOUS VARIABLES

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ABSTRACT

Aim: The aim of this study is to examine various health behaviours, demographic data and specific characteristics related to COVID-19 in individuals who lost their lives due to COVID-19. Understanding the effects of the pandemic and developing measures to manage similar situations are of great importance.

Methods: Data from 233 individuals who lost their lives to COVID-19 were accessed for the study. A 16-item questionnaire developed by the researchers was used for data collection. The data were collected between 10/09/2022 and 23/03/2023. Descriptive and Crosstab statistics were used for data analysis.

Results: It was found that 51.5% of the individuals who lost their lives due to Covid-19 were woman and 49.8% were aged 65 years and above. It was found that 15% of the participants were on regular medication and 37.8% had chronic diseases. It was observed that 63.1% of participants had received the COVID-19 vaccine and 41.2% had a high level of fear of contracting COVID-19. It is seen that women use herbal products against COVID-19 more than men, have a higher fear of getting COVID-19, and have higher rates of hospitalisation in intensive care due to COVID-19.

Conclusion: It was found that there is a relationship between fear of COVID-19 and health behaviours, and demographic factors such as age, gender and economic status are effective on experiences related to COVID-19. This study is an important step to assess the impact of the pandemic on people and to be prepared for similar situations in the future. In the long term, strategic investments are needed to make health systems more resilient and able to cope more effectively with emergencies such as pandemics. In this way, the sustainability of health services and the health of the population can be better protected when faced with similar crises.

INTRODUCTION

The COVID-19 pandemic has caused a major public health crisis worldwide, affecting the lives of millions of people. The deaths associated with this pandemic have profound medical, social and economic implications. In this context, examining COVID-19-related deaths according to various variables is crucial to better understand the impact of the pandemic and to manage future outbreaks.

Throughout world history, pandemics have been pivotal points of change and transformation. Outbreaks can have lasting and significant effects, leading to changes in governance, colonialism and even climate change. For example, the Spanish flu that emerged during World War I infected over 500 million people and is recorded as the largest pandemic in history, resulting in the deaths of between 40 and 60 million people within 18 months (1).

The COVID-19 pandemic caused serious health problems worldwide and resulted in high mortality rates in many countries (2). Since the onset of the pandemic, the study of COVID-19-related deaths based on various factors has been critical for both health policy makers and health care providers (3). During the COVID-19 pandemic, certain health behaviours, demographic characteristics and other factors related to the pandemic were observed to influence individuals' experiences and outcomes of the disease (4).

On 31 December 2019, the World Health Organization's country office in China reported cases of pneumonia of unknown origin in the city of Wuhan, Hubei Province, China, and on 5 January 2020, a new variant of coronavirus, previously unidentified in humans, was identified. Initially named 2019-nCoV, it was later dubbed COVID-19, and within three months of its emergence in China, it had spread around the World (5).

On 11 March, the first case of COVID-19 was reported in Turkey, and on the same day the World Health Organization declared the emerging situation a pandemic (6). According to the data page published and updated daily by the Ministry of Health, the first COVID-19 case was detected in Turkey on 11 March 2020 (7).

The most well-known clinical symptoms and laboratory findings of the disease are fever, normal or decreased leukocyte counts, dry cough, pneumonia, diarrhea, and dyspnea, but the main cause of death is acute respiratory distress syndrome triggered by cytokine storms (8).
Just as there has never been an endless epidemic throughout history, there has never been a society that forgets the process it left behind. Even the Spanish flu, which resulted in the deaths of approximately 20-40 million people, was forgotten after a while, only to be remembered with a new epidemic. Therefore, antigenic shifts that occur due to the natural process of viral mutation will always be present in our lives (9).

The importance of this study is to systematically investigate and analyse various factors that influence COVID-19-related deaths. Understanding the impact of variables such as age, gender, presence of chronic diseases, vaccination status, and their effect on COVID-19-related deaths is essential for determining pandemic control strategies and effectively directing resources (10).

Examining COVID-19-related deaths according to different variables is crucial to better understand the impact of the pandemic. The rate of pandemic spread, death rates and variables

within affected populations suggest that different factors play a role in the impact of pandemics. It is therefore necessary to examine in detail the impact of various variables, such as demographic characteristics, chronic disease status and vaccination rates on COVID-19-related deaths, in addition to health systems. By identifying and analysing factors, the aim is to provide a scientific basis for better understanding the impact of the pandemic and for more effective management of similar crises in the future.

MATERIALS AND METHOD

Study Design, Population, and Sample Size

The study population of this cross-sectional research consists of 233 individuals who lost their lives due to COVID-19 in a public hospital in Istanbul province between March 11, 2020, the date of emergence of COVID-19 in Turkey, and March 23, 2023. According to Bryman and Cramer (2001), it has been indicated that a sample size of five to ten times the number of scale questions would be sufficient. Therefore, the minimum required sample size is 160 (10x16=160) (11). Eventually, 236 patients were included in the study to increase its power. Three questionnaire forms were excluded from the analysis due to missing responses, inadequate answers, etc. Therefore, the sample of the study consists of 233 individuals who died due to COVID-19. This technique has been preferred due to its simplicity, cost-effectiveness, and fast data collection capacity (12).

Data Collection Tools

For data collection, a 16-item checklist designed by the researchers, consisting of three sections, was used.

First section: This section contains questions about the demographic characteristics of individuals who died due to COVID-19. The questions cover topics such as age, gender, and income status.

Second section: This section contains questions about factors that may be associated with COVID-19 death. These include consumption habits such as alcohol and smoking, continuous medication use, and accompanying illnesses.

Third section: This section contains questions about the COVID-19 pandemic. These include the individual's date of death, status of using herbal products, COVID-19 vaccination status, type of vaccine, number of vaccine doses, fear of contracting COVID-19, regular use of COVID-19 drugs, status of being hospitalized in the intensive care unit, and experiencing access problems to healthcare services

Ethical and Data Collection Process

After determining the purpose and scope of the study, necessary forms were prepared to assess its ethical compliance, and an application was made to the Artvin Çoruh University Scientific Research and Publication Ethics Committee. Permission for ethical compliance was obtained with the decision of the committee dated 01.08.2022 and numbered E-18457941-050.99-56641. Subsequently, after obtaining the necessary permissions from the public hospital where the data

would be collected, the data were gathered. Some of the data were extracted from the system, some were obtained from the individuals included in the sample, and some were collected from the relatives of the patients. The study data were collected between 10.09.2022 and 23.03.2023, and the data collection process lasted approximately 6 months.

Statistical Analysis

In the analysis of the data obtained from the study, the accuracy and completeness of the data were first checked. Initially, descriptive statistics such as frequency (%) were used to summarize demographic data and COVID-19 data. Then, the relationship between variables was evaluated using Crosstabs. SPSS 25 software package was used for data analysis.

RESULTS

Table 1. Demographic Information.

Variables		n	%	Variables		n	%
Gender	Female	120	51,5	**Age**	18-30	19	8,2
	Male	113	48,5		31-40	10	4,3
Economic Status	Poor	98	42,1		41-50	20	8,5
	Moderate	125	53,6		51-64	68	29,2
	Good	10	4,3		65 and over	116	49,8

Table 1 contains the demographic information of the participants in the study. In terms of gender, it was determined that 51.5% of the participants were woman, and 48.5% were man. When examined by age groups, 8.2% were between 18-30 years old, 4.3% were between 31-40 years old, 8.5% were between 41-50 years old, 29.2% were between 51-64 years old, and 49.8% were 65 years old and above.

In terms of economic status, 42.1% of the participants indicated poor, 53.6% indicated moderate, and 4.3% indicated good economic status. These demographic data indicate that the research participants come from various age groups, genders, and economic statuses. This diversity could enhance the generalizability of the study and the capacity to understand the experiences of participants from different subgroups.

Table 2. Participants' Health Behavior Data.

Variables		n	%	Variables		n	%
Continuous Medication Use	None	122	52,4	**Chronic Disease**	None	120	51,5
	Yes	76	15,0		Yes	88	37,8
	Not Accessed	35	32,6		Not Accessed	25	10,7
Smoking Status	Yes	67	28,8	**Consumption Status**	Yes	24	10,3
	No	166	71,2		No	209	89,7

Table 2 provides information regarding the health data of the participants. In terms of regularly used medication, 52.4% of the participants do not use any medication, while 15.0% use medication regularly. The proportion of participants with chronic illness is 37.8%. Regarding access to information, data on medication use for 32.6% of the participants and chronic illness for 10.7% of the participants could not be accessed.

When examining smoking status, it is observed that 28.8% of the participants smoke, while 71.2% do not. Looking at alcohol consumption, 10.3% of the participants use alcohol, while 89.7% do not.

These health data illustrate the overall profile of participants' health habits and risk factors. This information provides an important context for understanding and interpreting the health-related outcomes of the study.

Table 3. Findings Related to COVID-19.

Variables		n	%	Variables		n	%
Date of Death	2020	21	9,1	**Fear of Contracting COVID-19**	High	96	41,2
	2021	79	33,9		Moderate	107	45,9
	2022	95	40,8		Low	30	12,9
	2023	38	16,2	**Intensive care unit admission due to COVID-19**	Yes	175	75,1
					No	58	24,9
Use of Herbal Products for COVID-19	Yes	80	34,3	**Regular use of COVID-19 medications**	Yes	134	57,5
	No	153	65,7		No	99	42,5
Received COVID-19 Vaccine	Yes	147	63,1	**Number of Doses of Vaccine Received**	1st Dose	42	18,0
	No	86	36,9		2nd Dose	73	31,3
Vaccine Received	Pfizer-BioNTech	93	39,9		3rd Dose and above	21	9,1
	Sinovac	43	18,5		Not Accessed	11	4,7
	Not Accessed	11	4,7		No vaccination	86	36,9
	Did Not Receive	86	36,9	**Experienced difficulty in accessing health services during COVID-19**	Yes	7	3,0
					No	190	81,5
					Not Accessed	36	15,5

Table 3 depicts participants' experiences with COVID-19 and the precautions taken. Firstly, looking at the distribution by date of death, it is observed that in 2020, it was 9.1%, in 2021, 33.9%, in 2022, 40.8%, and in 2023, it was 16.2%.

Regarding the level of fear related to COVID-19, 41.2% of the participants have a high level of fear, 45.9% have a moderate level, and 12.9% have a low level of fear. When examining the situation of being in intensive care, 75.1% of the participants have been in intensive care due to COVID-19. The use of herbal products for COVID-19 is 34.3%, while regular use of COVID-19 medications is 57.5%.

In terms of vaccination status, 63.1% of the participants have received the COVID-19 vaccine, while 36.9% have not. Among those who have been vaccinated, the most preferred vaccine is Pfizer-BioNTech (39.9%), followed by Sinovac (18.5%). 31.3% of the participants have received 2 doses of the vaccine. The rate of those experiencing access issues to healthcare services during the COVID-19 process is 3.0%.

Table 4. Examination of COVID-19 Data by Gender and Age - Part 1.

Variables		Herbal Medication Usage		Fear of COVID-19			Difficulty Accessing Health Services			Admitted to ICU due to COVID-19	
		Yes	No	High	Moderate	Low	No Problem	Experienced Problem	No Date	Yes	No
Gender	Woman	49	71	69	42	9	89	3	28	106	14
	Man	31	82	27	65	21	101	4	8	69	44
Age	18-30	10	9	4	14	1	9	1	9	13	6
	31-40	6	4	1	9	0	8	0	2	5	5
	41-50	10	15	11	10	4	17	1	7	17	8
	51-64	18	50	31	36	1	56	2	10	50	18
	65 and over	36	75	49	38	24	100	3	8	90	21
Total		80	153	96	107	7	190	7	36	175	58

Table 4 presents an analysis of various factors related to COVID-19 based on demographic variables. Demographic factors such as gender, economic status, and age have been associated with various COVID-19-related variables.

Accordingly, numerically, it is observed that women are more likely than men to use herbal products against COVID-19, experience higher fear of contracting COVID-19, and have higher rates of admission to intensive care due to COVID-19.

In terms of age variable, it is determined that individuals aged 65 and over generally do not use herbal remedies against COVID-19, experience higher fear of contracting COVID-19, generally do not experience access issues to healthcare services, and have been admitted to intensive care due to COVID-19.

Table 5. Examination of COVID-19 Data by Gender and Age - Part 2.

Variables		Regular Use of COVID-19 Medication		Received COVID-19 Vaccine		Type of Vaccine			Number of Doses			
		Yes	No	Yes	No	Pfizer-BioNTech	Sinovac	No Data	1	2	3 or more	No Data
Gender	Woman	80	40	70	50	49	16	5	29	38	3	0
	Man	54	59	77	36	44	27	6	13	38	18	8
Age	18-30	9	10	14	5	10	0	4	4	10	0	0
	31-40	5	5	8	2	8	0	0	4	0	4	0
	41-50	15	10	19	6	18	0	1	1	18	0	0
	51-64	26	42	42	26	24	17	1	14	19	9	0
	65 and above	79	32	64	47	33	26	5	19	29	8	8
Total		134	99	147	86	93	43	11	76	76	21	8

Table 5 examines factors such as regular use of COVID-19 medications, COVID-19 vaccination status, which vaccine they received, and how many doses they received. According to this data, various differences are observed among demographic groups.

Generally, women tend to use COVID-19 medications regularly and get vaccinated more often than men. In terms of economic status, those with better economic status tend to use regular COVID-19 medications more, but there is no significant difference in vaccination rates.

When examined by age, it is observed that elderly individuals generally take regular COVID-19 medications and vaccines more frequently. Especially individuals aged 65 and over have a higher vaccination rate compared to other age groups.

Table 6. Examination of COVID-19 Data Based on Health Behavior Data.

Variables		Fear of COVID-19			Admitted to ICU due to COVID-19	
		High	**Moderate**	**Low**	**Yes**	**No**
Regular medication use	No	46	64	12	88	34
	Yes	40	24	6	58	18
	No information	10	19	12	29	6
Chronic illness	No	42	66	12	75	45
	Yes	41	33	14	76	12
	No Date	13	8	4	24	1
Smoking	Yes	23	38	6	41	26
	No	73	69	24	134	32
Alcohol	Yes	14	5	5	19	5
	No	82	102	25	156	53
Total		96	107	30	175	58

Table 6 examines the relationship between fear of COVID-19 and the incidence of intensive care unit (ICU) admission due to COVID-19, in relation to various health behaviors.

Firstly, a connection between fear of COVID-19 and health behaviors is observed. For instance, individuals with high fear of COVID-19 are observed to have a higher likelihood of ICU admission. Additionally, it is noteworthy that individuals with high fear of COVID-19 tend to adhere to regular medication usage and have a higher likelihood of having a chronic illness.

However, smoking habits and alcohol consumption do not appear to be significantly associated with fear of COVID-19. There is no notable difference observed in the likelihood of ICU admission due to COVID-19 between individuals with smoking habits and those without. Similarly, there is no significant relationship observed between alcohol consumption and fear of COVID-19.

These findings could serve as a valuable resource for developing health policies and public health measures. Particularly, the use of such data is important for evaluating the effectiveness of information and support programs targeted towards individuals experiencing fear of COVID-19.

DISCUSSION

The results of this study have thoroughly analysed the demographic characteristics, health behaviours and experiences related to COVID-19 of the participants. The results indicate a strong association between fear of COVID-19 and health behaviours. In particular, demographic factors such as age, gender and economic status were found to influence experiences related to COVID-19. Differences in mortality rates from COVID-19 have been identified in different age groups, with women and economically disadvantaged groups being at higher risk. Significant relationships have also been found between health behaviours and experiences related to COVID-19. For example, regular use of medication and receipt of the COVID-19 vaccine play an important role in reducing an individual's risk of COVID-19.

However, risky behaviours such as smoking and alcohol consumption were not correlated with fear of COVID-19.

In COVID-19, it is well known that age is a key determinant of mortality. Many studies have shown that mortality is higher in people over the age of 55 (13-15).

Looking at the mortality rates of those diagnosed with COVID-19 in the literature, the study by Yanez et al. (2020) reported that out of 8,516 patients, 954 died, resulting in a mortality rate of 11.20% (13). In the study by Rashed (2020), 952 patients diagnosed with COVID-19 were evaluated. It was found that 208 of the 952 patients died during treatment. The mortality rate among hospitalised patients due to COVID-19 in Rashed's study was 21.84% (208/952) (16). The high mortality rate may be due to the fact that the study was conducted in a university hospital.

It has been reported in the literature that men have a higher mortality rate than women (17). Higher mortality in men has been associated with a higher prevalence of chronic comorbidities such as cardiovascular disease, hypertension and pulmonary disease, as well as higher smoking rates in men (18).

Patients with chronic comorbidities have been reported in the literature to be associated with severe COVID-19 disease (19). In particular, patients with pre-existing cardiovascular disease and diabetes mellitus were found to have more severe COVID-19 symptoms (20).

CONCLUSION

The results of this study also highlight the burden of COVID-19 on healthcare systems. Factors such as increased intensive care unit occupancy rates, limited medical resources and extreme stress among healthcare workers are exacerbating the impact of the pandemic on healthcare infrastructure. This situation calls for urgent action by health policy-makers to strengthen health systems. In the long term, strategic investments are needed to make health systems more resilient and better equipped to deal with extraordinary situations such as pandemics. In this way, the sustainability of health services and the health of the population can be better maintained in the face of similar crises.

Ethics Committee Approval: Ethical approval was obtained with the decision of Artvin Çoruh University Scientific Research and Publication Ethics Committee dated 01.08.2022 and numbered E-18457941-050.99-56641.

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