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The Effect of Sociodemographic Characteristics of Covid-19 Positive Individuals on Covid-19 Spread

Covid-19 Pozitif Bireylerin Sosyodemografik Özelliklerinin Covid-19 Bulaşına Etkisi

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Abstract

Introduction	The aim of this study is to examine the causes of the individual spread of the COVID-19 infection, which has ravaged our country and our world for more than two years, to identify the factors affecting the spread and to draw attention to health literacy and to make correct recommendations for the fight against the current
Materials and Methods	The descriptive study was carried out in Yıldırım and Nilüfer districts, which are the central districts of Bursa, between March 2021 and February 2022,by contacting individuals with a positive COVID-19 test over the HSYS system,with the participation of people who agreed to fill out the questionnaire
Results	The study was conducted between March 2021 and February 2022, by reaching a total of 3842 people, 992 (25.8%) from Nilüfer district and 2850 (74.2%) from Yıldırım district. While 8 (0.8%) of the patients in Nilüfer district stated that they did not go into isolation, this rate was 260 (9.1%) in Yıldırım district. The average number of contacts for participants was 2.42±2.52; it was 1.39±1.94 in Nilüfer district and 2.77±2.60 in Yıldırım district, and the difference was statistically significant.
Conclusion	The aim of this study was to identify the factors affecting the spread of COVID-19 in our socioeconomically advanced district based on social life, household income, education level, and number of households. We observed that a higher level of education, higher household income, and lower number of people living in the household were associated with reduced spread of COVID-19. These findings highlight the importance of health literacy and correct recommendations for the fight against the current pandemic.
Keywords	COVID-19 , contact tracing , sociodemographic factors

Özet

Amaç	Bu çalışmanın amacı, iki yılı aşkın süredir ülkemizi ve dünyamızı kasıp kavuran Covid 19 enfeksiyonunun bireysel yayılım nedenlerini incelemek, yayılımı etkileyen faktörleri tespit etmek ve sağlık okuryazarlığına dikkat çekmektir. ile mücadelede doğru önerilerde bulunmaktır.
Gereç ve Yöntemler	Araştırma, Mart 2021-Şubat 2022 tarihleri arasında Bursa'nın merkez ilçeleri olan Yıldırım ve Nilüfer ilçelerinde HSYS sistemi üzerinden Covid testi pozitif çıkan kişilerle temasa geçilerek, ilgili kişilerin katılımıyla tanımlayıcı tipte yapılmıştır. anketi doldurmayı kabul etti
Bulgular	Çalışma Mart 2021-Şubat 2022 tarihleri arasında Nilüfer ilçesinden 992 (%25,8) ve Yıldırım ilçesinden 2850 (%74,2) olmak üzere toplam 3842 kişiye ulaşılarak yapılmıştır. Nilüfer ilçesinde hastaların 8'i (%0,8) tecride gitmediğini belirtirken, Yıldırım ilçesinde bu oran 260 (%9,1) oldu. Katılımcıların temas ortalaması 2,42±2,52; Nilüfer ilçesinde 1,39±1,94, Yıldırım ilçesinde 2,77±2,60 olup aradaki fark istatistiksel olarak anlamlıdır.
Sonuç	İlimiz ölçeğinde sosyal yaşam, hane geliri, eğitim düzeyi, hane sayısı bazında yürüttüğümüz bu çalışmada, sosyoekonomik olarak gelişmiş ilçemizde Covid 19 salgınının yayılmasının etkilerini inceledik, eğitim düzeyi, hane gelirinin yüksek olması ve hanede yaşayan insan sayısının azlığının covid 19'un bulaşma oranını azalttığını gözlemledik.
Anahtar Kelimeler	Covid 19, temaslı takibi, sosyodemografik faktörler

INTRODUCTION

The COVID-19 pandemic, which began in early 2020, rapidly spread across the world [1], esulting in over 17 million cases in our country and over 636 million cases worldwide[2, 3]. Despite ongoing research and theories about the spread of the virus, it is widely accepted that the distance and contact time of COVID-19 positive individuals with non-infected individuals is a critical factor in the spread of the virus. To prevent the spread of COVID-19, various measures such as social distancing, wearing masks, and maintaining proper hygiene have been suggested and widely promoted.

It has been reported that the reproductive number of COVID-19 is 1.9-6.5 compared to other infectious diseases that threaten public health, and the average number of people infected by a COVID-19 positive individual worldwide is higher than that of SARS and MERS due to its respiratory transmission [4]. Although such a number has not been found in the literature of our country, it is noteworthy that the average number of people infected by an individual, which is 1.3-1.7 for Influenza A H1N1 and 1.95-2.21 for H5N1, also known as bird flu, is high in COVID-19 [5, 6].

High sociocultural level, high household income, low number of household members, high education level, and high health literacy, which is a component of these, are shown as the reason for the low number of contacts reported from countries where the spread of COVID-19 is low[7].

The aim of this study is to examine the causes of the individual spread of the COVID-19 infection, which has ravaged our country and our world for more than two years, to identify the factors affecting the spread and to draw attention to health literacy and to make the right suggestions for the fight against the COVID-19 epidemic we are experiencing and other epidemics that may come in the coming years. Infectious agents will continue to be an important public health problem as long as humanity exists. Considering that measures such as vaccination and hygiene are the main factors that strengthen our hand in this war; Considering that sociodemographic factors such as education level, household income, and the number of people living in the household are side factors, we think that we will fight global public health problems more easily with a global level of welfare to be achieved.

Ethic: Application permission was obtained from the institution where the study would be conducted, and Bursa City Hospital Non-Interventional Clinical Research Ethics Committee approval [2021-7/11]. Participants were informed about the research and their verbal consent was obtained. The forms were made in an environment where the participants could express themselves comfortably. The results obtained were considered only as research findings and kept confidential, paying attention to the privacy of the participants and the confidentiality of personal information.

MATERIAL METHOD

The descriptive study was carried out in Yıldırım and Nilüfer districts, which are the central districts of Bursa, between March 2021 and February 2022, by contacting individuals with a positive COVID-19 test over the HSYS (Public Health Management System) system, with the participation of people who agreed to fill out the questionnaire. According to TUIK (Turkish Statistical Institute) address-based population records, the population of Yıldırım district is 653307 on 31.12.2021 and the population of Nilüfer district is 518382. Persons were called once for the study and it was carried out with the participation of a total of 3842 people, 992 (%25.8) from Nilüfer district and 2850 (74.2%) from Yıldırım district, who agreed to participate in the survey. A total of 34 questions were asked in the survey, and questions were asked about the socio-demographic characteristics of the people, the symptoms and signs related to COVID-19, the information about the contact, the COVID-19 vaccine status of the people and their perspectives on the vaccine.

Statıstıcal Analysıs

Table 1. Change of Educational Status by Gender

Education Status	Gender				Total	
	Female		Male			
	n	%	n	%	n	%
Illiterate	81	3.8	10	0.6	91	2.4
Literate	54	2.5	14	0.8	68	1.8
Primary School	628	29.6	363	21.1	991	25.8
Secondary School	218	10.3	254	14.7	472	12.3
High School	606	28.6	574	33.3	1180	30.7
University	513	24.2	495	28.7	1008	26.2
Pre-school	19	0.9	13	0.8	32	0.8
Total	2119	100.0	1723	100.0	3842	100.0

Table 2. Change of Household Income by Districts

Household income (TL)	District			
	Nilüfer		Yıldırım	
	n	%	n	%
0-3000	50	5.0	994	34.9
3001-6000	401	40.4	1471	51.6
6001-12000	417	42.0	329	11.5
12001-18000	120	12.1	52	1.8
18001 and higher	4	0.4	4	0.1
Total	992	100.0	2850	100.0

Table 3. Change in COVID-19 Symptoms

Symptom	n	%
Muscle joint pain	1750	45.5
Cough	1122	29.9
Fever	1003	26.1
Headache	915	23.8
Loss of taste and smell	657	17.1
Sore throat	652	17.0
Shortness of breath	315	8.2
Diarrhea	85	2.2

Descriptive data in the analyzes were given as percentile and mean±standard deviation (SD). Chi-square test was used to compare categorical data and t test was used to compare means, and $p<0.05$ was considered statistically significant. The data were evaluated with the SPSS 20.0 program.

RESULTS

The study was carried out by reaching a total of 3842 people, 992 (25.8%) from Nilüfer district and 2850 (74.2%) from Yıldırım district between March 2021 and February 2022. The mean age of the participants was 39.85±17.03, and the youngest and the oldest participant was 95 years old. 2119 (55.2%) of the individuals evaluated in the study are women and 2516 (65.5%) are married. In the research group, the highest number of high school graduates 1180 (30.7%) were, and their educational status is shown in Table 1.

DISCUSSION

Surveillance studies were carried out to prevent the spread of cases in the COVID-19 epidemic, which spread very quickly compared to other pandemics such as SARS and MERS in our century. COVID-19 positive individuals have been isolated since the beginning of the epidemic, starting with 21 days and decreasing to 7 days. Despite the isolation measures, government policies and penal sanctions, there were individuals who broke through the isolation measures, and therefore the epidemic became difficult to control for a long time.

The biggest source of transmission of COVID-19 positive individuals in our study was found to be domestic transmission. Our study is consistent with the literature [8-10]. Crowded accommodation, which is an emphasized sociodemographic determinant, is one of the factors that facilitate the spread of infectious agents [10]. It has been reported that the spread of COVID-19 is faster in regions where economic resources are low, safe sex practices are not prioritized, and extended family living is chosen for both economic and social reasons [8-10].

In our study, at least one symptom was observed in 3,694 (96.1%) of COVID-19 positive individuals, and the most common symptom was found to be muscle and joint pain. Our finding is similar to the literature, although it has

Table 4. Average Statistical Significance of COVID-19 Positive Individuals by District Contacted

	District	n	•x	SS	t	SD	p
Contacted average of participants	Nilüfer	992	1.39	1.942	-15.373	3840	0.001
	Yıldırım	2850	2.77	2.601	-17.651	3840	0.001

Table 5. Treatment Processes of COVID-19 Positive Individuals by District

Treatment Process	District			
	Nilüfer		Yıldırım	
	n	%	n	%
Home drug free	409	41.2	465	16.3
Taking medicine at home	543	54.7	2193	76.9
Lying on the ward in the hospital	38	3.9	171	6.1
In intensive care	2	0.2	21	0.7
Total	992	100.0	2850	100.0

Table 6. COVID-19 Vaccination Status by Districts

Vaccination status	District				X^2	p
	Nilüfer		Yıldırım			
	n	%	n	%		
Vaccinated	669	78.3	1932	72.2	12,692	0.0001
Not vaccinated	185	21.7	745	27.8		
Total	854	100.0	2677	100.0		

Table 7. Suggestion of COVID-19 Vaccine by COVID-19 Positive Individuals by District

Vaccination status	District				X^2	p
	Nilüfer		Yıldırım			
	n	%	n	%		
Recommender	783	91.7	2236	83.5	34,772	0.0001
Not recommending	71	8.3	441	16.5		
Total	854	100.0	2677	100.0		

Table 8. Reasons for Recommendation of COVID-19 Positive Individuals Who Do Not Recommend COVID-19 Vaccine

Reasons for not recommending the vaccine	n	%
Mistrust of vaccine	283	59.6
Instability	56	11.8
Lack of information about the vaccine	40	8.4
Fear of side effects	53	11.2
Positive post-vaccination disease	11	2.3
Other	32	6.7
Total	475	100.0

changed since the beginning of the epidemic. The fact that fever, cough, and shortness of breath were the most common symptoms, respectively, has been replaced by muscle-joint pain, cough, and fever. This indicates that the epidemic has lost its lethality, albeit at a slower pace [11-13].

In our study, a statistically significant difference was found in the average number of people contacted by COVID-19 positive cases in Yıldırım and Nilüfer districts. Studies to prevent the spread of the epidemic have shown that low individual income, household income and even the country income level bring a higher risk of COVID-19 transmission due to working in jobs that require physical contact in order to survive, although more work needs to be done in more contact and isolation[8-10] . Our study is similar to the literature in this aspect.

The rate of getting the COVID-19 vaccine, which is the most powerful weapon we have within the scope of CO-VID-19 protection measures, was statistically significantly different between the two districts. This may be due to the different sociodemographic and socioeconomic characteristics of the two districts. It is an established information in the literature that people's tendency to be vaccinated is related to education level, household income, sociocultural level and health literacy[14].

Even if they are infected with COVID-19, the rate of recommending the COVID-19 vaccine to their relatives was found to be statistically significantly different between the two districts. We attribute this difference to the different sociodemographic characteristics of our two districts. Sociodemographic markers such as economic level, education level, urban residence, etc., were reported as factors that could be effective in the processes of accepting and recommending the vaccine, which was previously reported in a survey study covering twenty countries[15]. The fact

that these factors are different between our two districts explains the finding of our study.

In our study, the most common reason for opposition to the COVID-19 vaccine was a lack of trust in the vaccine's contents. This finding is consistent with the literature, which suggests that inadequate explanations of vaccine contents contribute to vaccine hesitancy and refusal [16, 17]. It is known that in every newly discovered vaccine, there are similar problems, rejection and indecision, and that they can settle over time and these fears are overcome[16, 17]. Including the importance of vaccines in the fight against infectious agents in the education curriculum and placing it in the minds of individuals from childhood can facilitate our work in order to destroy vaccine rejection in future epidemics.

The COVID-19 outbreak reminded us once again of the role of epidemiological studies in understanding the epidemic[18]. Epidemiological studies, especially those that analyze the effects of cultural, economic and social components, have been important steps for understanding and preventing the epidemic[18-20].

CONCLUSION

In our study based on social life, household income, education level and number of households at the scale of our city, we examined the effects of the COVID-19 epidemic in our socioeconomically advanced district. We observed the importance of these socioeconomic markers even in the acceptance and rejection of the vaccine applied for the prevention of COVID-19. In addition to contributing to the surveillance and epidemiological work of our province, we draw attention to the preventive medicine practice, which means preventing the importance of a primary care-based health system before the infection occurs, and health literacy, which is very important for the prevention of the spread after the disease occurs. We are of the opinion that it will shed light on other studies to be done after us, revealing how important a social, cultural and economic based development spread throughout the society is even in the control of epidemics.

Limitations

The most important limitation of our study can be shown as the fact that our universe is limited to two districts and the factors questioned for the social analysis of COVID-19 positive individuals are not detailed.

References

1. WHO. Coronavirus disease (COVID-19) Pandemic–April 12 Update (cited 2022 November 11). Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019.

2. WHO. Coronavirus (COVID-19) Dashboard (cited 2022 November 11). Available from: https://covid19.who.int/.

3. T.C. Sağlık Bakanlığı. COVID-19 Bilgilendirme Platformu (cited 2022 November 11). Available from: https://covid19.saglik.gov.tr/.

4. Achaiah NC, Subbarajasetty SB, Shetty RM. R0 and re of COVID-19: can we predict when the pandemic outbreak will be contained? Indian journal of critical care medicine: peer-reviewed, official publication of Indian Society of Critical Care Medicine. 2020;24(11):1125.

5. Hofmann J. Novel Influenza. In Netter's Infectious Diseases, Elaine C. Jong, Dennis L. Stevens, editors. Saunders; 2012. p.530-536

6. Ward M, Maftei D, Apostu C, Suru A. Estimation of the basic reproductive number (R0) for epidemic, highly pathogenic avian influenza subtype H5N1 spread. Epidemiology & Infection. 2009;137(2):219-26.

7. Buja A, Paganini M, Cocchio S, Scioni M, Rebba V, Baldo V. Demographic and socio-economic factors, and healthcare resource indicators associated with the rapid spread of COVID-19 in Northern Italy: An ecological study. PLoS One. 2020;15(12):e0244535.

8. Skogberg N, Koponen P, Lilja E, Austero S, Achame S, Castaneda AE. Access to information, preventive measures and working conditions during the coronavirus epidemic. 2021.

9. Helsinki G. Situation Room Report: The Corona Virus and Health Differences–In Which Socioeconomic Groups Have the Most Infections Been Observed in Finland? Helsinki Graduate School of Economics. 2021.

10. Siljander M, Uusitalo R, Pellikka P, Isosomppi S, Vapalahti O. Spatiotemporal clustering patterns and sociodemographic determinants of COVID-19 (SARS-CoV-2) infections in Helsinki, Finland. Spatial and spatio-temporal epidemiology. 2022;41:100493.

11. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. The lancet. 2020;395(10223):497-506.

12. Mo P, Xing Y, Xiao Y, Deng L, Zhao Q, Wang H, et al. Clinical characteristics of refractory COVID-19 pneumonia in Wuhan, China. Clinical infectious diseases. 2020.

13. Weng L-M, Su X, Wang X-Q. Pain symptoms in patients with coronavirus disease (COVID-19): a literature review. Journal of Pain Research. 2021;14:147.

14. Troiano G, Nardi A. Vaccine hesitancy in the era of COVID-19. Public health. 2021;194:245-51.

15. Marzo RR, Ahmad A, Islam MS, Essar MY, Heidler P, King I, et al. Perceived COVID-19 vaccine effectiveness, acceptance, and drivers of vaccination decision-making among the general adult population: A global survey of 20 countries. PLoS neglected tropical diseases. 2022;16(1):e0010103.

16. Machingaidze S, Wiysonge CS. Understanding COVID-19 vaccine hesitancy. Nature Medicine. 2021;27(8):1338-9.

17. Soares P, Rocha JV, Moniz M, Gama A, Laires PA, Pedro AR, et al. Factors associated with COVID-19 vaccine hesitancy. Vaccines. 2021;9(3):300.

18. Ibrahim NK. Epidemiologic surveillance for controlling Covid-19 pandemic: types, challenges and implications. Journal of infection and public health. 2020;13(11):1630-8.

19. Park M, Cook AR, Lim JT, Sun Y, Dickens BL. A systematic review of COVID-19 epidemiology based on current evidence. Journal of clinical medicine. 2020;9(4):967.

20. Sun J, He W-T, Wang L, Lai A, Ji X, Zhai X, et al. COVID-19: epidemiology, evolution, and cross-disciplinary perspectives. Trends in molecular medicine. 2020;26(5):483-95.