ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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Compliance with General Rules and Periodically Differences During the COVID-19 Pandemic in Türkiye: A Cross-Sectional Study

Türkiye'de COVID-19 Pandemi Sürecinde Genel Kurallara Uyum ve Dönemsel Farklılıklar: Bir Kesitsel Çalışma

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ABSTRACT Objective: The aim of this research is to investigate the compliance of the society with the general 14 rules of the Ministry of Health and the generally accepted hygiene rules recommended in the literature during the coronavirus disease-2019 (COVID-19) pandemic process. In line with the purpose, behavioral differences related to demographic characteristics and pandemic periods were also evaluated. **Material and Methods:** The study was conducted in August 2021 and snowball sampling technique was used. A questionnaire of 23 questions was applied to participants, in which compliance with the hygiene rules, including demographic questions, was investigated. The study included 1,069 participants between the ages of 18 and 65, living in Türkiye, using smartphones. **Results:** In our study, when the results of the compliance with the measures are examined, the compliance has decreased in almost all the other periods compared to the first period of the pandemic. In general, females pay more attention to complying with hygiene rules than males. It has been observed that those who have had COVID-19 disease pay less attention to participating in public areas than those who have not had COVID-19 disease. **Conclusion:** Social distancing, avoidance of mass events, hygiene, etc., are the most critical measures in slowing the spread of coronavirus. For this reason, it should not be forgotten that non-compliance with the rules will lead to an increase in cases. In terms of the "normalization" steps taken during the pandemic process, analyzing the compliance rate with the hygiene rules seems very important in guiding future studies.

Keywords: COVID-19; public health; compliance; Türkiye

ÖZET Amaç: Çalışmamızın amacı, koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] pandemi sürecinde Sağlık Bakanlığının genel 14 kuralına ve literatürde önerilen genel kabul görmüş hijyen kurallarına toplumun uyumunu araştırmaktır. Amaç doğrultusunda ayrıca demografik özelliklere ve pandemi dönemlerine ilişkin davranış farklılıkları değerlendirilmiştir. **Gereç ve Yöntemler:** Çalışmamız, Ağustos 2021 tarihinde gerçekleştirilmiş olup, kartopu örnekleme tekniği kullanılmıştır. Katılımcılara demografik sorular da dâhil olmak üzere hijyen kurallarına uygunluğunun araştırıldığı 23 soruluk anket uygulanmıştır. Araştırma, Türkiye'de yaşayan ve akıllı telefon kullanan 18-65 yaş aralığında 1.069 katılımcı ile gerçekleştirilmiştir. **Bulgular:** Çalışmamızda, tedbirlere uyum sonuçları incelendiğinde, pandeminin ilk dönemine göre hemen hemen diğer tüm dönemlerde uyum azalmıştır. Genel olarak kadınlar hijyen kurallarına uymaya erkeklere göre daha fazla dikkat etmektedir. COVID-19 hastalığı geçirenlerin toplu alanlara katılım göstermede COVID-19 hastalığı geçirmeyenlere göre daha az dikkat ettiği gözlenmiştir. **Sonuç:** Sosyal mesafeye uyum, toplu etkinliklerden kaçınma, hijyen vb. davranışlar koronavirüsün yayılmasını yavaşlatmada en kritik önlemlerdir. Bu nedenle kurallara uyulmadığı durumda vaka sayısının artışına sebep olacağı unutulmamalıdır. Pandemi sürecinde atılan "normalleşme" adımları açısından kurallara uyum oranının analiz edilmesi ve bundan sonraki çalışmalara yön vermesi açısından oldukça önemlidir.

Anahtar Kelimeler: COVID-19; halk sağlığı; uyum; Türkiye

It was first identified as new pneumonia of unknown etiology in Wuhan, Hubei, China; since December 2019, the struggle against coronavirus continues despite the cumulative number of cases exceeding 231 million and the number of deaths exceeding 4.7 million in the world, and the number of cases exceeding 6 million and approximately 60 thousand deaths in our country.[1-4]

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Coronavirus transmission occurs primarily through droplets expelled from the respiratory system.[1,5,6] In addition to this, the coronavirus has the characteristics of rapid spread and high contagiousness.[7] Adherence to hygiene rules such as protective measures, self-isolation, social distance, and handwashing are the most essential and crucial behaviors.[8,9] Compliance with the precautions is important due to the fact that the spread of the pandemic continues and maintains its effect. During the coronavirus disease-2019 (COVID-19) pandemic, countries adopted a set of rules and lockdowns to slow the spread of the coronavirus. Therefore, it has become imperative for society to change its hygiene behaviors.

The Ministry of Health has adopted 14 rules to prevent citizens from getting COVID-19 during the pandemic and has constantly emphasized implementing these rules.[10] The rules are presented in Table 1. These rules, which are obligatory in many centers, aim to slow down and prevent transmission by giving the message of adopting hygiene rules.

Measures such as social distancing and staying at home may affect the population's mental health.[11,12] With the effects of the measures taken and the prolongation of the pandemic process, the problem that individuals may comply with the precautions may decrease.

The aim of this research is to investigate the compliance of the society with the general 14 rules of the Ministry of Health as well as the generally accepted hygiene rules recommended in the literature during the COVID-19 pandemic process. Thus, behavioral differences between pandemic periods and differences between socio-demographic characteristics were investigated.

MATERIAL AND METHODS

The survey of 23 questions was applied to participants, in which compliance with the hygiene rules, including demographic questions, was investigated. "The first period of the pandemic" refers to the periods March-April-May 2020, "Mid of the pandemic" October-November-December 2020, "Currently" May-June-July 2021 in the study. The survey was conducted in August 2021. The study included 1,069 participants between the ages of 18 and 65, living in Türkiye, using smartphones. The study and informed consent form were approved by Bursa Uludag University Faculty of Medicine Clinical Research Ethics

TABLE 1: 14 rules against the risk of COVID-19 by Republic of Turkey Ministry of Health.

No.	Rules
1	Wash your hands frequently with soap and water for at least 20 seconds by scrubbing.
2	Keep at least 3-4 steps away from people who show symptoms of colds.
3	Cover your mouth and nose with disposable wipes during coughing and sneezing. If there are no wipes, use the inside of the elbow.
4	Avoid physical contacts such as handshaking and hugging.
5	Do not touch your eyes, mouth, and nose with your hands.
6	Cancel or postpone your travels abroad.
7	Spend the first 14 days at home on your return from abroad.
8	Ventilate your environment frequently.
9	Wash your clothes at 60-90ºC with regular detergent.
10	Clean frequently used surfaces such as door handles, fixtures, and sinks with water and detergent every day.
11	If you have cold symptoms, avoid contact with people, especially the elders and those with chronic diseases, and do not go out without wearing a mask.
12	Do not share your personal belongings, such as towels.
13	Dink plenty of fluids, maintain a balanced diet, and pay attention to your sleep patterns.
14	If you have persistent fever, cough, and shortness of breath, go to a health facility wearing a mask.

COVID-19: Coronavirus disease-2019.

Committee (Ethics Committee Approval date: July 28, 2021, no: 2021-10/30).

DATA COLLECTION

The questionnaire was created by using Google Form. Snowball sampling technique which is a widely used as sampling method in qualitative research was used to collect data from participants. In the method, in addition to collecting information about individuals, they are asked to include other suitable people in the study.[13] Thus, the participants were asked to fill-out and share the questionnaire with their contacts using social media apps. Considering the period in which the study was conducted, the snowball sampling technique with online survey approach is the best way to collect data to ensure the safety of the participant's health. The ethics committee approved an informed consent form and this was attached to the first section of the questionnaire. Each participant consented to participate in the survey after reading the informed consent form. Participants were informed about the purpose of the study, confidentiality of the information, and the right to opt-out of participation without giving any reason with the consent form. This study was also conducted in accordance with the 2008 Helsinki Declaration and its later amendments.

STATISTICAL ANALYSIS

Kolmogorov-Smirnov test was used to assess whether the variable followed a normal distribution. The descriptive statistics of the non-normally distributed age variable were reported as the median (minimum-maximum). Pearson chi-square test, Fisher's Exact test, Fisher Freeman Halton test, McNemar test, and McNemar-Bowker test were used to compare categorical variables. SPSS v22.0 (IBM Corp., Armonk, NY, USA) software was used for statistical analysis. The significance level was established as $p<0.05$.

RESULTS

The demographic characteristics of the study are shown in Table 2.

When Table 3 is examined in terms of self-isolation after traveling abroad, no statistically significant difference was observed when compared to the first period and other periods ($p=0.135$, $p=0.070$). When the participation in any social activity is examined, it is observed that there are increases in other periods compared to the first period ($p<0.001$, $p<0.001$). Similarly, in terms of family and friend visits, increases were observed at other times than the first time ($p<0.001$, $p<0.001$). It has been observed that the use of disposable masks is higher currently when compared to the first period of the pandemic ($p<0.001$) (Table 3).

When the other periods were examined in terms of the frequency of changing masks compared to the first period, it was observed that the rate of those who changed it several times a day decreased, and the rate of those who changed it once a day was higher than the first period ($p<0.001$, $p<0.001$). In the mid-period of pandemic and currently, in case of contact or coming from outside, the frequency of observation of disinfectant use and handwashing behavior is lower than in the first period ($p<0.001$, $p<0.001$). In compliance with social distance, it is seen that there is a serious decrease in the frequency of observation in other periods compared to the first period ($p<0.001$, $p<0.001$). When the other periods are compared to the first period, decreases were observed in the ventilation of the living environments. ($p<0.001$, $p<0.001$) (Table 3).

When the first period of the pandemic and "currently" were compared, it was observed that there was a decrease in compliance with paying attention to hygiene during coughing and sneezing ($p=0.036$). In the case of isolation with cold symptoms, it was observed that compliance was lower in other periods than the first pandemic period ($p<0.001$, $p<0.001$). When the rate of avoiding close contact such as handshaking and hugging is examined, it was observed that the other periods were lower than the first period ($p<0.001$, $p<0.001$). Compared to the first period, it was observed that being careful not to touch your eyes, mouth, and nose with your hands was lower in other periods ($p<0.001$, $p<0.001$) (Table 3).

In other periods, the rate of compliance with paying attention to contact with the elderly and those with chronic diseases is lower than in the first period of the pandemic ($p<0.001$, $p<0.001$). When examining "common use of your personal belongings", it

TABLE 2: Descriptive statistics of the participants (n=1,069).

Age [Median (minimum-maximum)]		**37**	**18-65**
		n	**%**
Gender	Female	732	68.5
	Male	337	31.5
Educational status	Elementary school	8	0.7
	Secondary school	13	1.2
	High school	66	6.2
	University (Associate's degree)	103	9.6
	University (Bachelor's degree)	563	52.7
	Master's degree	169	15.8
	Ph.D.	147	13.8
Are you healthcare personnel?	No	878	82.1
	Yes	191	17.9
What is the approximate population of your settlement?	<500	10	0.9
	500-1,000	18	1.7
	1,000-2,000	15	1.4
	2,000-5,000	16	1.5
	5,000-1,0000	19	1.8
	10,000-50,000	32	3
	50,000-100,000	40	3.7
	100,000-500,000	232	21.7
	500,000-1 million	96	9
	1 million-2 million	78	7.3
	2 million-3 million	140	13.1
	>3 million	373	34.9
Have you had COVID-19 disease?	No	860	80.4
	Yes	209	19.6
Do you have any of the people you describe as family or relatives who have had COVID-19 disease?	No	350	32.7
	Yes	719	67.3
Do you have any of the people you describe as family or relatives who died due to COVID-19?	No	813	76.1
	Yes	256	23.9

COVID-19: Coronavirus disease-2019.

was observed that the "currently" period usage was higher than the first period of the pandemic ($p<0.001$) (Table 3).

When evaluated according to socio-demographic characteristics, it is seen that those who have COVID-19 disease pay less attention not to attending public areas than those who do not have COVID-19 (all periods for Q2 and Q4) (Table 4). When comparing the groups of family/relatives who have died due to COVID-19 or not, there are statistically significant differences in the middle and "currently" periods for Q2 (Table 4). Females pay more attention than males in all periods for Q6, Q7, Q9, Q10, Q11, Q13, Q14, Q15; in the first period of the pandemic for Q2, Q4, Q12; in the first and middle periods of the pandemic for Q3 and Q8 (Table 4, Table 5, Table 6). According to educational status, there are statistically significant differences in the first and "currently" periods for Q9; in the first and middle periods for Q12; in all periods for Q15 (Table 5, Table 6). It is seen that compliance with the rules for healthcare personnel is lower than non-healthcare personnel in the "currently" period for Q2; in the middle and "currently" periods for Q7, Q9. When comparing population size groups, there are statistically significant differences in the "currently" period for Q3; in the middle and "currently" periods for Q6; in the first and middle periods for Q12 (Table 4, Table 5, Table 6). When comparing the groups of family/relatives who have had COVID-19 or not, there are statistically sig-

TABLE 3: Comparisons between other periods and the first period of pandemic.

		The first period of pandemic		Mid of pandemic		Currently		
		n	%	n	%	n	%	p value
Q1. When you travel abroad, did you isolate yourself in the specified time on your return?	I have not traveled abroad	1,019	95.3	1,005	94	1,010	94.5	F-M: 0.135
	I did not isolate myself	16	1.5	22	2.1	29	2.7	F-C: 0.070
	I isolated for 1-5 days	10	0.9	9	0.8	15	1.4	
	I isolated for 6-9 days	1	0.1	5	0.5	2	0.2	
	I isolated for 10 days	7	0.7	7	0.7	4	0.4	
	I isolated for >10 days	16	1.5	21	2	9	0.8	
Q2. Have you attended any social events (congress, wedding, celebration, etc.)?	No	864	80.8	719	67.3	645	60.3	F-M: <0.001
	Yes	205	19.2	350	32.7	424	39.7	F-C: <0.001
Q3. Have you visited family or friends by paying attention to the mask and social-distancing rule?	No	684	64	442	41.3	220	20.6	F-M: <0.001
	Yes	385	36	627	58.7	849	79.4	F-C: <0.001
Q4. Have you visited family or friends?	No	732	68.5	521	48.7	265	24.8	F-M: <0.001
	Yes	337	31.5	548	51.3	804	75.2	F-C: <0.001
Q5. Which type of mask are you using?	Disposable mask	998	93.4	1012	94.7	1026	96	F-M: 0.165
	Washable mask	71	6.6	57	5.3	43	4	F-C: <0.001
Q6. How often do you change your mask?	Once a day	402	37.6	457	42.8	485	45.4	F-M: <0.001
	Several times a day	564	52.8	490	45.8	430	40.2	F-C: <0.001
	Once a week	17	1.6	16	1.5	20	1.9	
	Several times a week	81	7.6	101	9.4	125	11.7	
	When I lose	5	0.5	5	0.5	9	0.8	
Q7. Do you use disinfectant or wash your hands when you meet someone, come from outside, or come into contact with an object belonging to someone else during the day?	No	15	1.4	19	1.8	31	2.9	F-M: <0.001
	Sometimes	31	2.9	60	5.6	97	9.1	F-C: <0.001
	Yes	1,023	95.7	990	92.6	941	88	
Q8. Do you pay attention to keep 2 meters?	No	44	4.1	59	5.5	132	12.3	F-M: <0.001
	Sometimes	102	9.5	230	21.5	385	36	F-C: <0.001
	Yes	923	86.3	780	73	552	51.6	
Q9. Do you ventilate your environments often?	No	15	1.4	19	1.8	20	1.9	F-M: <0.001
	Sometimes	45	4.2	72	6.7	102	9.5	F-C: <0.001
	Yes	1,009	94.4	978	91.5	947	88.6	
Q10. Do you take care to use a disposable tissue or the inside of your elbow when coughing and sneezing?	No	30	2.8	31	2.9	34	3.2	F-M: 0.801
	Sometimes	35	3.3	34	3.2	44	4.1	F-C: 0.036
	Yes	1004	93.9	1004	93.9	991	92.7	
Q11. Do you isolate yourself when you have symptoms of a cold?	No	40	3.7	43	4	58	5.4	F-M: <0.001
	Sometimes	54	5.1	77	7.2	121	11.3	F-C: <0.001
	Yes	975	91.2	949	88.8	890	83.3	
Q12. Do you avoid close contact, such as shaking hands or hugging?	No	32	3	30	2.8	60	5.6	F-M: <0.001
	Sometimes	37	3.5	68	6.4	185	17.3	F-C: <0.001
	Yes	1,000	93.5	971	90.8	824	77.1	
Q13. Do you take care not to touch your eyes, mouth, and nose with your hands outside?	No	34	3.2	36	3.4	55	5.1	F-M: <0.001
	Sometimes	70	6.5	109	10.2	166	15.5	F-C: <0.001
	Yes	965	90.3	924	86.4	848	79.3	
Q14. Do you pay attention to your contact with the elderly and those with chronic diseases?	No	44	4.1	48	4.5	49	4.6	F-M: <0.001
	Sometimes	25	2.3	45	4.2	80	7.5	F-C: <0.001
	Yes	1,000	93.5	976	91.3	940	87.9	
Q15. Do you share your personal belongings?	No	970	90.7	961	89.9	924	86.4	F-M: 0.524
	Sometimes	57	5.3	64	6	94	8.8	F-C: <0.001
	Yes	42	3.9	44	4.1	51	4.8	

F: First period of the pandemic; M: Mid period of the pandemic; C: Currently.

TABLE 4: Comparisons according to socio-demographic characteristics in pandemic periods about attending public areas.

		Q2. Have you attended any social events (congress, wedding, celebration, etc.)?						Q3. Have you visited family or friends by paying attention to the mask and social-distancing rule?					
		F		M		C		F		M		C	
		n	%	n	%	n	%	n	%	n	%	n	%
Gender	Female	118/732	16.1	228/732	31.1	282/732	38.5	230/732	31.4	411/732	56.1	589/732	80.5
	Male	87/337	25.8	122/337	36.2	142/337	42.1	155/337	46	216/337	64.1	260/337	77.2
p value		**<0.001**		0.102		0.262		**<0.001**		**0.014**		0.213	
Educational status	High School	15/66	22.7	19/66	28.8	29/66	43.9	24/66	36.4	38/66	57.6	49/66	74.2
	University	134/666	20.1	221/666	33.2	254/666	38.1	246/666	36.9	392/666	58.9	536/666	80.5
	M.S./Ph.D.	52/316	16.5	107/316	33.9	135/316	42.7	110/316	34.8	189/316	59.8	254/316	80.4
p value		0.297		0.727		0.307		0.811		0.930		0.474	
Are you healthcare personnel?	No	169/878	19.2	285/878	32.5	329/878	37.5	319/878	36.3	512/878	58.3	700/878	79.7
	Yes	36/191	18.8	65/191	34	95/191	49.7	66/191	34.6	115/191	60.2	149/191	78
p value		0.899		0.675		0.002		0.643		0.630		0.595	
Approx. population of your settlement	<500,000	80/382	20.9	114/382	29.8	143/382	37.4	142/382	37.2	220/382	57.6	288/382	75.4
	≥500,000	125/687	18.2	236/687	34.4	281/687	40.9	243/687	35.4	407/687	59.2	561/687	81.7
p value		0.899		0.675		**0.002**		0.643		0.630		0.595	
Approx. population of your settlement	<500,000	80/382	20.9	114/382	29.8	143/382	37.4	142/382	37.2	220/382	57.6	288/382	75.4
	≥500,000	125/687	18.2	236/687	34.4	281/687	40.9	243/687	35.4	407/687	59.2	561/687	81.7
p value		0.274		0.132		0.267		0.557		0.599		**0.015**	
Have you had COVID-19 disease?	No	147/860	17.1	269/860	31.3	328/860	38.1	303/860	35.2	496/860	57.7	678/860	78.8
	Yes	58/209	27.8	81/209	38.8	96/209	45.9	82/209	39.2	131/209	62.7	171/209	81.8
p value		**<0.001**		**0.039**		**0.039**		0.280		0.188		0.339	
Family or relatives who have had COVID-19?	No	62/350	17.7	104/350	29.7	127/350	36.3	114/350	32.6	194/350	55.4	258/350	73.7
	Yes	143/719	19.9	246/719	34.2	297/719	41.3	271/719	37.7	433/719	60.2	591/719	82.2
p value		0.397		0.141		0.115		0.102		0.135		**0.001**	
Family or relatives who died due to COVID-19?	No	150/813	18.5	250/813	30.8	309/813	38	288/813	35.4	483/813	59.4	640/813	78.7
	Yes	55/256	21.5	100/256	39.1	115/256	44.9	97/256	37.9	144/256	56.3	209/256	81.6
p value		0.282		**0.013**		**0.049**		0.473		0.371		0.314	

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TABLE 4: Comparisons according to socio-demographic characteristics in pandemic periods about attending public areas.

		Q4. Have you visited family or friends?						Q14. Do you always pay attention to your contact with the elderly and those with chronic diseases?					
		F		M		C		F		M		C	
		Yes		Yes		Yes		Yes		Yes		Yes	
		n	%	n	%	n	%	n	%	n	%	n	%
Gender	Female	198/732	27	364/732	49.7	559/732	76.4	703/732	96	687/732	93.9	661/732	90.3
	Male	139/337	41.2	184/337	54.6	245/337	72.7	297/337	88.1	289/337	85.8	279/337	82.8
p value		**<0.001**		0.139		0.197		**<0.001**		**<0.001**		**<0.001**	
Educational status	High School	26/66	39.4	40/66	60.6	51/66	77.3	61/66	92.4	59/66	89.4	58/66	87.9
	University	211/666	31.7	337/666	50.6	507/666	76.1	628/666	94.3	612/666	91.9	594/666	89.2
	M.S./Ph.D.	95/316	30.1	164/316	51.9	235/316	74.4	292/316	92.4	286/316	90.5	270/316	85.4
p value		0.334		0.298		0.795		0.486		0.655		0.241	
Are you healthcare personnel?	No	282/878	32.1	448/878	51	657/878	74.8	818/878	93.2	802/878	91.3	775/878	88.3
	Yes	55/191	28.8	100/191	52.4	147/191	77	182/191	95.3	174/191	91.1	165/191	86.4
p value		0.370		0.739		0.536		0.279		0.913		0.469	
Approx. population of your settlement	<500,000	125/382	32.7	188/382	49.2	278/382	72.8	352/382	92.1	346/382	90.6	334/382	87.4
	≥500,000	212/687	30.9	360/687	52.4	526/687	76.6	648/687	94.3	630/687	91.7	606/687	88.2
p value		0.530		0.318		0.169		0.165		0.531		0.709	
Have you had COVID-19 disease?	No	258/860	30	423/860	49.2	633/860	73.6	802/860	93.3	782/860	90.9	755/860	87.8
	Yes	79/209	37.8	125/209	59.8	171/209	81.8	198/209	94.7	194/209	92.8	185/209	88.5
p value		**0.030**		**0.006**		**0.014**		0.434		0.384		0.773	
Family or relatives who have had COVID-19?	No	113/350	32.3	168/350	48	247/350	70.6	322/350	92	314/350	89.7	307/350	87.7
	Yes	224/719	31.2	380/719	52.9	557/719	77.5	678/719	94.3	662/719	92.1	633/719	88
p value		0.709		0.136		**0.014**		0.151		0.199		0.878	
Family or relatives who died due to COVID-19?	No	257/813	31.6	418/813	51.4	608/813	74.8	759/813	93.4	745/813	91.6	720/813	88.6
	Yes	80/256	31.3	130/256	50.8	196/256	76.6	241/256	94.1	231/256	90.2	220/256	85.9
p value		0.914		0.860		0.566		0.657		0.488		0.261	

F: First period of the pandemic; M: Mid period of the pandemic; C: Currently; COVID-19: Coronavirus disease-2019.

TABLE 5: Comparisons according to socio-demographic characteristics in pandemic periods about isolation.

		Q1. When you travel abroad, did you isolate yourself in the specified time on your return? (*Those who went abroad)						Q8. Do you always pay attention to keep 2 meters?						Q9. Do you always ventilate your environments often?					
		F		M		C		F		M		C		F		M		C	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Gender	Female	29/40	72.5	30/43	69.8	24/43	55.8	650/732	88.8	558/732	76.2	389/732	53.1	706/732	96.4	687/732	93.9	673/732	91.9
	Male	5/10	50	12/21	57.1	6/16	37.5	273/337	81	222/337	65.9	163/337	48.4	303/337	89.9	291/337	86.4	274/337	81.3
p value		0.256		0.318		0.211		**0.001**		**<0.001**		0.147		**<0.001**		**<0.001**		**<0.001**	
Educational status	High School	2/3	66.7	4/5	80	3/3	100	53/66	80.3	43/66	65.2	31/66	47	63/66	95.5	62/66	93.9	61/66	92.4
	University	20/30	66.7	24/37	64.9	16/36	44.4	579/666	86.9	494/666	74.2	347/666	52.1	638/666	95.8	616/666	92.5	600/666	90.1
	M.S./Ph.D.	10/15	66.7	12/20	60	9/18	50	275/316	87	228/316	72.2	160/316	50.6	290/316	91.8	282/316	89.2	268/316	84.8
p value		1.000		0.714		0.246		0.307		0.267		0.697		**0.032**		0.178		**0.031**	
Are you healthcare personnel?	No	26/39	66.7	35/51	68.6	23/43	53.5	758/878	86.3	645/878	73.5	463/878	52.7	833/878	94.9	812/878	92.5	792/878	90.2
	Yes	8/11	72.7	7/13	53.8	7/16	43.8	165/191	86.4	135/191	70.7	89/191	46.6	176/191	92.1	166/191	86.9	155/191	81.2
p value		1.000		0.343		0.506		0.984		0.433		0.124		0.138		**0.012**		**<0.001**	
Approx. population of your settlement	<500,000	18/25	72	19/30	63.3	14/30	46.7	321/382	84	270/382	70.7	203/382	53.1	358/382	93.7	348/382	91.1	342/382	89.5
	≥500,000	16/25	64	23/34	67.6	16/29	55.2	602/687	87.6	510/687	74.2	349/687	50.8	651/687	94.8	630/687	91.7	605/687	88.1
p value		0.544		0.717		0.514		0.101		0.210		0.463		0.478		0.735		0.470	
Have you had COVID-19 disease?	No	27/41	65.9	33/48	68.8	25/45	55.6	744/860	86.5	633/860	73.6	453/860	52.7	814/860	94.7	786/860	91.4	763/860	88.7
	Yes	7/9	77.8	9/16	56.3	5/14	35.7	179/209	85.6	147/209	70.3	99/209	47.4	195/209	93.3	192/209	91.9	184/209	88
p value		0.699		0.362		0.195		0.744		0.340		0.169		0.447		0.827		0.781	
Family or relatives who have had COVID-19?	No	8/13	61.5	10/20	50	7/20	35	294/350	84	261/350	74.6	189/350	54	321/350	91.7	310/350	88.6	302/350	86.3
	Yes	26/37	70.3	32/44	72.7	23/39	59	629/719	87.5	519/719	72.2	363/719	50.5	688/719	95.7	668/719	92.9	645/719	89.7
p value		0.731		0.076		0.081		0.120		0.409		0.281		**0.008**		**0.017**		0.099	
Family or relatives who died due to COVID-19?	No	27/41	65.9	34/53	64.2	27/51	52.9	701/813	86.2	595/813	73.2	416/813	51.2	767/813	94.3	740/813	91	717/813	88.2
	Yes	7/9	77.8	8/11	72.7	3/8	37.5	222/256	86.7	185/256	72.3	136/256	53.1	242/256	94.5	238/256	93	230/256	89.8
p value		0.699		0.735		0.472		0.841		0.773		0.585		0.909		0.330		0.469	

TABLE 5: Comparisons according to socio-demographic characteristics in pandemic periods about isolation *(devamı)*.

		Q11. Do you always isolate yourself when you have symptoms of a cold?						Q12. Do you always avoid close contact, such as shaking hands or hugging?					
		F		M		C		F		M		C	
		Yes		Yes		Yes		Yes		Yes		Yes	
		n	%	n	%	n	%	n	%	n	%	n	%
Gender	Female	687/732	93.9	667/732	91.1	629/732	85.9	697/732	95.2	670/732	91.5	576/732	78.7
	Male	288/337	85.5	282/337	83.7	261/337	77.4	303/337	89.9	301/337	89.3	248/337	73.6
p value		**<0.001**		**<0.001**		**0.001**		**0.001**		0.244		0.065	
Educational status	High School	58/66	87.9	55/66	83.3	52/66	78.8	54/66	81.8	51/66	77.3	46/66	69.7
	University	602/666	90.4	589/666	88.4	551/666	82.7	625/666	93.8	605/666	90.8	510/666	76.6
	M.S./Ph.D.	297/316	94	288/316	91.1	271/316	85.8	303/316	95.9	297/316	94	252/316	79.7
p value		0.103		0.147		0.287		**<0.001**		**<0.001**		0.182	
Are you healthcare personnel?	No	799/878	91	777/878	88.5	729/878	83	823/878	93.7	800/878	91.1	683/878	77.8
	Yes	176/191	92.1	172/191	90.1	161/191	84.3	177/191	92.7	171/191	89.5	141/191	73.8
p value		0.613		0.537		0.672		0.587		0.491		0.237	
Approx. population of your settlement	<500,000	344/382	90.1	336/382	88	314/382	82.2	346/382	90.6	338/382	88.5	299/382	78.3
	≥500,000	631/687	91.8	613/687	89.2	576/687	83.8	654/687	95.2	633/687	92.1	525/687	76.4
p value		0.320		0.528		0.490		**0.003**		**0.047**		0.490	
Have you had COVID-19 disease?	No	787/860	91.5	766/860	89.1	724/860	84.2	801/860	93.1	773/860	89.9	668/860	77.7
	Yes	188/209	90	183/209	87.6	166/209	79.4	199/209	95.2	198/209	94.7	156/209	74.6
p value		0.475		0.535		0.098		0.273		**0.029**		0.349	
Family or relatives who have had COVID-19?	No	314/350	89.7	308/350	88	295/350	84.3	320/350	91.4	317/350	90.6	282/350	80.6
	Yes	661/719	91.9	641/719	89.2	595/719	82.8	680/719	94.6	654/719	91	542/719	75.4
p value		0.229		0.576		0.529		**0.049**		0.836		0.058	
Family or relatives who died due to COVID-19?	No	736/813	90.5	718/813	88.3	674/813	82.9	761/813	93.6	739/813	90.9	631/813	77.6
	Yes	239/256	93.4	231/256	90.2	216/256	84.4	239/256	93.4	232/256	90.6	193/256	75.4
p value		0.163		0.396		0.582		0.890		0.895		0.460	

F: First period of the pandemic; M: Mid period of the pandemic; C: Currently; COVID-19: Coronavirus disease-2019.

TABLE 6: Comparisons according to socio-demographic characteristics in pandemic periods about self-hygiene.

		Q5. Which type of mask are you using?						Q6. How often do you change your mask?						Q7. Do you always use disinfectant or wash your hands when you meet someone, come from outside, or come into contact with an object belonging to someone else during the day?					
		F		M		C		F		M		C		F		M		C	
		Disposable mask		Disposable mask		Disposable mask		Daily		Daily		Daily		Yes		Yes		Yes	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Gender	Female	682/732	93.2	689/732	94.1	695/732	94.9	689/732	94.1	678/732	92.6	658/732	89.9	713/732	97.4	695/732	94.9	666/732	91
	Male	316/337	93.8	323/337	95.8	331/337	98.2	277/337	82.2	269/337	79.8	257/337	76.3	310/337	92	295/337	87.5	275/337	81.6
p value		0.715		0.245		**0.011**		**<0.001**		**<0.001**		**<0.001**		**<0.001**		**<0.001**		**<0.001**	
Educational status	High School	62/66	93.9	60/66	90.9	61/66	92.4	56/66	84.8	57/66	86.4	56/66	84.8	60/66	90.9	59/66	89.4	60/66	90.9
	University	617/666	92.6	635/666	95.3	641/666	96.2	604/666	90.7	594/666	89.2	574/666	86.2	644/666	96.7	627/666	94.1	594/666	89.2
	M.S./Ph.D.	300/316	94.9	299/316	94.6	305/316	96.5	289/316	91.5	277/316	87.7	268/316	84.8	301/316	95.3	286/316	90.5	269/316	85.1
p value		0.394		0.291		0.278		0.243		0.661		0.831		0.061		0.067		0.142	
Are you healthcare personnel?	No	817/878	93.1	827/878	94.2	841/878	95.8	790/878	90	773/878	88	744/878	84.7	844/878	96.1	820/878	93.4	786/878	89.5
	Yes	181/191	94.8	185/191	96.9	185/191	96.9	176/191	92.1	174/191	91.1	171/191	89.5	179/191	93.7	170/191	89	155/191	81.2
p value		0.389		0.137		0.494		0.357		0.228		0.087		0.137		**0.036**		**0.001**	
Approx. population of your settlement	<500,000	364/382	95.3	364/382	95.3	372/382	97.4	338/382	88.5	328/382	85.9	309/382	80.9	365/382	95.5	353/382	92.4	338/382	88.5
	≥500,000	634/687	92.3	648/687	94.3	654/687	95.2	628/687	91.4	619/687	90.1	606/687	88.2	658/687	95.8	637/687	92.7	603/687	87.8
p value		0.059		0.501		0.081		0.120		**0.037**		**0.001**		0.860		0.851		0.732	
Have you had COVID-19 disease?	No	804/860	93.5	807/860	93.8	819/860	95.2	777/860	90.3	759/860	88.3	731/860	85	823/860	95.7	798/860	92.8	752/860	87.4
	Yes	194/209	92.8	205/209	98.1	207/209	99	189/209	90.4	188/209	90	184/209	88	200/209	95.7	192/209	91.9	189/209	90.4
p value		0.729		**0.014**		**0.012**		0.971		0.489		0.262		0.998		0.647		0.233	
Family or relatives who have had COVID-19?	No	330/350	94.3	331/350	94.6	331/350	94.6	312/350	89.1	310/350	88.6	297/350	84.9	330/350	94.3	323/350	92.3	304/350	86.9
	Yes	668/719	92.9	681/719	94.7	695/719	96.7	654/719	91	637/719	88.6	618/719	86	693/719	96.4	667/719	92.8	637/719	88.6
p value		0.396		0.922		0.103		0.345		0.991		0.632		0.113		0.777		0.411	
Family or relatives who died due to COVID-19?	No	771/813	94.8	770/813	94.7	775/813	95.3	736/813	90.5	719/813	88.4	694/119	85.4	774/813	95.2	750/813	92.3	707/813	87
	Yes	227/256	88.7	242/256	94.5	251/256	98	230/256	89.8	228/256	89.1	221/256	86.3	249/256	97.3	240/256	93.8	234/256	91.4
p value		**0.001**		0.911		0.053		0.746		0.784		0.701		0.156		0.424		0.056	

TABLE 6: Comparisons according to socio-demographic characteristics in pandemic periods about self-hygiene *(devamı)*.

		Q10. Do you always take care to use a disposable tissue or the inside of your elbow when coughing and sneezing?						Q13. Do you always take care not to touch your eyes, mouth, and nose with your hands outside?						Q7. Do you always use disinfectant or wash your hands when you meet someone, come from outside, or come into contact with an object belonging to someone else during the day?Q15. Do you always share your personal belongings?					
		F		M		C		F		M		C		F		M		C	
		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Gender	Female	705/732	96.3	702/732	95.9	695/732	94.9	693/732	94.7	659/732	90	616/732	84.2	22/732	3	24/732	3.3	27/732	3.7
	Male	299/337	88.7	302/337	89.6	296/337	87.8	272/337	80.7	265/337	78.6	232/337	68.8	20/337	5.9	20/337	5.9	24/337	7.1
p value		**<0.001**		**<0.001**		**<0.001**		**<0.001**		**<0.001**		**<0.001**		**0.022**		**0.042**		**0.014**	
Educational status	High School	61/66	92.4	60/66	90.9	59/66	89.4	56/66	84.8	52/66	78.8	49/66	74.2	8/66	12.1	7/66	10.6	9/66	13.6
	University	632/666	94.9	633/666	95	623/666	93.5	608/666	91.3	586/666	88	537/666	80.6	24/666	3.6	24/666	3.6	29/666	4.4
	M.S./Ph.D.	292/316	92.4	293/316	92.7	291/316	92.1	283/316	89.6	269/316	85.1	245/316	77.5	10/316	3.2	13/316	4.1	13/316	4.1
p value		0.265		0.187		0.378		0.202		0.076		0.309		**0.002**		**0.026**		**0.003**	
Are you healthcare personnel?	No	829/878	94.4	830/878	94.5	818/878	93.2	794/878	90.4	761/878	86.7	704/878	80.2	31/878	3.5	33/878	3.8	39/878	4.4
	Yes	175/191	91.6	174/191	91.1	173/818	90.6	171/191	89.5	163/191	85.3	144/191	75.4	11/191	5.8	11/191	5.8	12/191	6.3
p value		0.143		0.072		0.212		0.702		0.626		0.139		0.151		0.207		0.279	
Approx. population of your settlement	<500,000	357/382	93.5	357/382	93.5	352/382	92.1	340/382	89	329/382	86.1	304/382	79.6	17/382	4.5	19/382	5	19/382	5
	≥500,000	647/687	94.2	647/687	94.2	639/687	93	625/687	91	595/687	86.6	544/687	79.2	25/687	3.6	25/687	3.6	32/687	4.7
p value		0.636		0.636		0.602		0.298		0.825		0.878		0.513		0.292		0.816	
Have you had COVID-19 disease?	No	806/860	93.7	806/860	93.7	796/860	92.6	777/860	90.3	740/860	86	682/860	79.3	33/860	3.8	34/860	4	38/860	4.4
	Yes	198/209	94.7	198/209	94.7	195/209	93.3	188/209	90	184/209	88	166/209	79.4	9/209	4.3	10/209	4.8	13/209	6.2
p value		0.581		0.581		0.711		0.862		0.451		0.968		0.754		0.587		0.273	
Family or relatives who have had COVID-19?	No	321/350	91.7	325/350	92.9	320/350	91.4	309/350	88.3	298/350	85.1	280/350	80	17/350	4.9	18/350	5.1	19/350	5.4
	Yes	683/719	95	679/719	94.4	671/719	93.3	656/719	91.2	626/719	87.1	568/719	79	25/719	3.5	26/719	3.6	32/719	4.5
p value		0.035		0.311		0.263		0.126		0.389		0.704		0.276		0.238		0.481	
Family or relatives who died due to COVID-19?	No	758/813	93.2	761/813	93.6	750/813	92.3	737/813	90.7	706/813	86.8	641/813	78.8	33/813	4.1	34/813	4.2	39/813	4.8
	Yes	246/256	96.1	243/256	94.9	241/256	94.1	228/256	89.1	218/256	85.2	207/256	80.9	9/256	3.5	10/256	3.9	12/256	4.7
p value		0.095		0.442		0.311		0.454		0.493		0.487		0.696		0.846		0.943	

F: First period of the pandemic; M: Mid period of the pandemic; C: Currently; COVID-19: Coronavirus disease-2019.

nificant differences in the "currently" period for Q3, Q4; in the first and middle periods for Q9; in the first period for Q10, Q12 (Table 4, Table 5, Table 6).

DISCUSSION

It makes it critical for its officials to plan appropriate strategies to slow and manage the pace of the epidemic. Therefore, it is imperative to examine citizens' attitudes and compliance with measures to guide these efforts.

In our study, while the rate of not participating in social activities (congress, wedding, celebration, etc.) in the first pandemic period was 80.8%, it was observed as 60.3% today. In March 2020, Guidry et al., observed that 19.8% of the participants answered "somewhat likely" and 65.8% "extremely likely" in their tendency to avoid large gatherings compliance.[14] In addition, in our study, the rate was 31.5% in the first pandemic period for visiting family or friends, 51.3% in the middle of the pandemic, and currently 75.2%.

In a study that was surveyed twice, in April and June 2020, it was observed that 86.7% and 82.2% of the participants followed the social distance rule.[15] In another study conducted between April and June 2020, compliance was observed as 58.3%.[16] According to a study conducted in Ethiopia in May 2020, 23.3% of participants answered "often" and 18.6% "always" to the social distance rule.[17] In our study, we observed that there were serious decreases in compliance with the social distance rule in the mid-period of the pandemic (73%) and "currently" period (51.6%) compared to the first period (86.3%).

In a study investigating the community's compliance with hand hygiene during the pandemic, it was observed that compliance with hand hygiene increased during the March-April period and reached its peak, but then returned to the baseline due to fluctuations in the number of cases of COVID-19.[18] In a study conducted in the United States, compliance with handwashing or using disinfectants was reported as 94.7%.[19] In a study conducted in Türkiye during the first period of the epidemic, it was observed that 98.8% of the participants washed their hands, and 96.1% used hand disinfectant to prevent the disease.[20] In our study, the rate of disinfectant use and handwashing was observed as 95.7% in the first period of the pandemic and observed as 88% for May-June-July 2021 period. In another study investigating hand hygiene, it is emphasized that compliance varies according to different criteria, and the duration of hand hygiene and drying method should be strengthened.[21]

In our study, the rate of avoidance of handshaking and hugging was 93.5% at the beginning of the pandemic, while it was 90.8% in the middle of the pandemic and 77.1% "current" period. According to a study conducted in India in May 2020, 97.8% of participants avoided hugging and shaking hands.[22] Isolation when having cold symptoms is 91.2% in the first period of the pandemic, while it is currently 83.3%. While the rate of those who take care not to touch their eyes, mouth, and nose outside was 90.3% in the first period of the pandemic, it was "current" measured as 79.3%.

According to the results, females pay more attention to complying with hygiene rules than males in general. Compliance with the rules for healthcare personnel is lower than non-healthcare personnel in some situations. Those who have COVID-19 disease pay less attention not to attending public areas than those who do not have COVID-19 as expected.

In our study, when the results of the compliance with the measures and the statistical analyses are examined, it is seen that the compliance has decreased in almost all the other periods compared to the first period of the pandemic. The continuation of the pandemic process and its social and economic effects can undoubtedly be specified as some examples of this situation.

LIMITATIONS OF THE STUDY

The survey was conducted via the internet, which may cause selection bias. It is recommended to solve the selection bias problem by a large sample size. For this reason, a large sample was used to eliminate selection bias.

CONCLUSION

It is an issue that needs to be discussed how effectively the 14 rules recommended by the Ministry of Health can prevent transmission when fully imple-

mented. However, social distancing, avoidance of mass events, hygiene, etc., are the most essential measures in slowing the spread of coronavirus. For this reason, it should not be forgotten that non-compliance with the rules will lead to an increase in cases. In terms of the "normalization" steps taken during the pandemic process, analyzing the compliance rate with the hygiene rules seems very important in guiding future studies.

Source of Finance

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

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