



EVALUATION OF THE COMPLIANCE OF PEOPLE WITH THE CONTAINMENT MEASURES AND WEARING-MASK BEHAVIOURS IN DIFFERENT STAGES OF COVID-19 PANDEMIC: AN OBSERVATIONAL STUDY FROM TURKEY

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Introduction. Protection measurements should be paid attention so that the regions affected to a great extent gain time for medical care and medical facilities can cope with increasing intensive care cases. The purpose of this study was to investigate the change in the rate of behaviours of people related to going out and wearing a mask during the pandemic in Turkey. **Material and methods.** This observational study investigated people's behaviours of going out and mask-wearing in the province of Kahramanmaras in Turkey during 4 different periods with 14-day intervals before and after Covid-19 pandemic. A total of 48 hours camera record made in 4 different periods at 12 pedestrian crossings used intensively by people was examined. Two researchers recorded and examined the number and gender of the people using these pedestrian crossings and their wearing-mask behaviours on a data collection form. The obtained data were presented as tables and graphics, showing numbers and percentages. Appropriate mask wearing according to gender was analysed by Chi-Square test. **Results.** The number of people using pedestrian crossings decreased by 70.19% for men and 87.07% for women compared to before the pandemic. When comparing the appropriate mask-wearing according to gender, it was concluded that women had a higher statistically significant rate on the appropriate mask-wearing compared to men ($p < 0.05$). **Conclusions.** Compliance to mask-wearing and control measures was high at the beginning of the pandemic. A high percentage of women wore masks correctly. About 40 days after the pandemic started, people wore the mask less correctly.

Cuvinte cheie: mască, măsuri de izolare, Covid-19, Turcia, lockdown.

EVALUAREA COMPLIANȚEI PERSOANELOR CU MĂSURILE DE IZOLARE ȘI COMPORTAMENTUL DE A PURTA MASCA LA DIFERITE ETAPE ALE PANDEMIEI COVID-19: UN STUDIU OBSERVAȚIONAL ÎN TURCIA

Introducere. Măsurile de protecție necesită o atenție sporită, astfel încât regiunile afectate să beneficieze de suficient timp pentru îngrijiri medicale, iar instituțiile medicale să poată gestiona numărul crescut de pacienți, internați la terapie intensivă. Scopul acestui studiu a fost de a investiga comportamentul persoanelor, ca răspuns la purtarea măștilor, în perioada pandemiei în Turcia. **Material și metode.** În acest studiu observațional a fost investigat comportamentul persoanelor, din provincia Kahramanmaras, Turcia, la purtarea măștii în aer liber, în 4 perioade diferite, cu intervale de 14 zile, în perioada pre-pandemică și pandemică Covid-19. Ca dovadă au fost examinate cca 48 de ore video, înregistrate de camerele de supraveghere a traficului, efectuate în 4 perioade diferite, la 12 treceri pentru pietoni, utilizate frecvent de pietoni. Aceste înregistrări au fost examinate de doi cercetători, iar numărul, sexul persoanelor, care utilizează aceste treceri de pietoni și comportamentul lor de a purta masca, precum și de a o purta corect, au fost înregistrate într-un formular de colectare a datelor. Datele obținute au fost prezentate sub formă de tabele și grafice în cifre și procente. Purtarea corectă a măștii, în funcție de sex, a fost analizată prin testul Chi-Square. **Rezultate.** Numărul persoanelor care folosesc trecerile pentru pietoni s-a diminuat cu 70,19%, în cazul bărbaților și cu 87,07%, în cazul femeilor, comparativ cu perioada pre-pandemică. La fel, femeile au avut o rată semnificativă și în ceea ce privește purtarea corectă a măștii, față de bărbați ($p < 0,05$). **Concluzii.** Respectarea normelor de purtare a măștii și a măsurilor de control au fost stricte la început de pandemie, iar comparativ cu bărbații, femeile purtau și foloseau corect masca, într-un procent mai ridicat. Ulterior, aproximativ la 40 de zile de la declanșarea pandemiei, populația deja purta masca mai puțin corect.

INTRODUCTION

COVID-19 disease caused by SARS-CoV2 has turned into a pandemic with unknown transmission ways (1). The first COVID-19 case was identified on 11 March 2020 in Turkey, and the WHO declared its pandemic announcement on this date (2, 3).

The WHO suggested using barrier measures such as keeping a distance between other people at least one meter and wearing a medical mask (4). It is likely that the COVID-19 may slow down by taking people in risky regions under control and wearing a mask. Protection measurements should be paid attention so that the regions affected to a great extent gain time for medical care and medical facilities can cope with increasing intensive care cases (5, 6). Many European countries and the countries like USA, Canada and Australia imposed restrictions from forbidding school, entertainment activities and big events to a whole lockdown (7). On the other hand, South Korea and Hong Kong could prevent the COVID-19 outbreak to a certain extent. Mass masking, which plays an important role in barrier measures, may lead to a control on infectors and infected individuals in the outbreak by reducing the spread of infected droplets, especially from individuals with asymptomatic COVID-19 but the efficiency of mass masking is still disputable. Although the WHO and ECDC (European Centre for Disease Prevention and Control) have prepared conflicting reports on the fact that mass masking to be applied by healthy people may prevent being infected with the COVID-19, it is considered that mass masking would help the decrease of infection spreading (8-12).

The purpose of this study was to investigate the change in the rate of behaviours of people related to going out and wearing a mask during the pandemic in Turkey.

MATERIAL AND METHODS

This observational study investigated the people's behaviours of going out and wearing a mask in the province of Kahramanmaras in Turkey during 4 different periods with 14-day intervals, starting with the date of 10 March and then 24 March 2020, 7 April 2020 and 21 April 2020. This study was administrated on Tuesdays during 12.00-13.00, the most crowded times of the day. As there were curfews at some weekends in

Turkey, a weekday was considered to be more appropriate for the study. The observations on the above-mentioned dates were made through the camera records of the City Security Management Systems (KGYS-MOBESE) taken from the Provincial Security Directorate of Kahramanmaras by an official letter. A total of 48 hours camera record made in 4 different periods at 12 pedestrian crossings used intensively by people was examined.

Two researchers recorded and examined the number and gender of the people using these pedestrian crossings and their wearing-mask behaviours on a data collection form. Wearing a mask by covering mouth and nose was considered as the appropriate mask-wearing. The assessment made by two researchers independently at one randomly selected pedestrian crossing from the above mentioned 12 ones, exhibited four reliability coefficients in the test which were above 0.95. While a total of 12.625 people were determined by crossing, 154 people with clothes covering their faces were not evaluated in terms of wearing mask behaviour. The obtained data were presented as tables and graphics with numbers and percentages. Wearing appropriate mask according to gender was analysed by Chi-Square test. An ethics committee approval was not needed for this observational study since no personal data were used, thus the study was carried out in accordance with the Helsinki declaration.

RESULTS

In this study, the passers-by at 12 different pedestrian crossings within 4 different periods were investigated. It was determined that a total of 6013 people used these pedestrian crossings on 10 March 2020, while this number was found to be 2301 on 24 March 2020, 1441 on 07 April 2020 and 2870 on 21 April 2020. While a 76,04% decrease was observed in the number of people using these pedestrian crossings on 07 April 2020 compared to the date of 10 March 2020 (70.19% for male, 87.07% for female), an increase was found in the number of passers-by. It was determined that women respected the curfew more than men. The number and gender of people passing through the above-mentioned pedestrian crossings and their wearing mask status are provided in Table 1.

Table 1. Distribution of the number of people in the crosswalk and their mask wearing rates.

	10.03.2020 (0*)				24.03.2020 (1.872*)				07.04.2020 (34.109*)				21.04.2020 (95.591*)			
	n	% ^a	% ^b	% ^c	n	% ^a	% ^b	% ^c	n	% ^a	% ^b	% ^c	n	% ^a	% ^b	% ^c
Region 1																
Male	1460	66.8	0.14	0.14	877	89.9	8.6	6.7	530	81.4	73.0	59.4	979	71.7	85.6	59.6
Female	724	33.2	0	0	99	10.1	29.3	26.8	121	18.6	82.0	72.1	386	28.3	95.7	92.3
Total	2184		0.09	0.09	976		10.3	8.4	651		74.6	61.6	1365		88.3	68.3
Region 2																
Male	42	72.4	0	0	17	70.8	11.8	11.8	7	63.6	42.9	42.9	11	64.7	54.5	27.3
Female	16	27.6	0	0	7	29.2	0	0	4	36.4	50.0	50.0	6	35.3	83.3	66.7
Total	58				24		8.3	8.3	11		45.5	45.5	17		64.7	41.2
Region 3																
Male	158	68.7	0	0	84	82.4	7.1	4.8	51	82.3	64.7	33.3	87	67.4	82.8	50.6
Female	72	31.3	0	0	18	17.6	11.8	11.8	11	17.7	100	81.8	42	32.6	89.7	76.9
Total	230		0	0	102		7.9	5.9	62		71.0	41.9	129		84.9	58.7
Region 4																
Male	671	67.2	0.15	0.15	277	83.7	5.7	5.7	159	83.7	77.4	57.9	346	82.0	76.0	52.9
Female	327	32.8	0.30	0.30	54	16.3	17.6	17.6	31	16.3	93.3	83.3	76	18.0	93.2	87.7
Total	998		0.20	0.20	331		7.6	7.6	190		79.9	61.9	422		79.0	58.9
Region 5																
Male	217	65.6	0	0	93	76.2	3.2	3.2	62	80.5	71.0	59.7	90	75.0	75.6	46.7
Female	114	34.4	0	0	29	23.8	25.9	25.9	15	19.5	100	100	30	25.0	84.6	76.9
Total	331		0	0	122		8.3	8.3	77		76.6	67.5	120		77.6	53.4
Region 6																
Male	203	75.2	0	0	98	88.3	11.2	10.2	67	84.8	88.0	76.1	88	79.3	86.4	62.5
Female	67	24.8	0	0	13	11.7	23.1	23.1	12	15.2	90.9	63.6	23	20.7	95.7	91.3
Total	270		0	0	111		12.6	11.7	79		88.5	74.4	111		88.3	68.5
Region 7																
Male	277	69.1	0	0	133	79.6	6.0	6.0	69	78.4	73.9	68.1	143	83.1	72.0	58.7
Female	124	30.9	0	0	34	20.4	8.8	8.8	19	21.6	84.2	73.7	29	16.9	92.6	85.2
Total	401		0	0	167		6.6	6.6	88		76.1	69.3	172		87.6	62.9
Region 8																
Male	480	67.6	0.20	0.20	182	78.4	6.6	5.5	125	82.2	70.4	60.8	192	71.4	84.9	64.1
Female	230	32.4	0.44	0.44	50	21.6	12.5	8.3	27	17.8	88.9	88.9	77	28.6	100	92.2
Total	710		0.28	0.28	232		7.8	6.1	152		73.7	65.8	269		88.7	71.1
Region 9																
Male	10	41.7	10.0	0	4	66.7	0	0	2	40.0	50.0	50.0	8	66.7	75.0	50.0
Female	14	58.3	0	0	2	33.3	0	0	3	60.0	66.7	66.7	4	33.3	100	100
Total	24		4.2	0	6		0	0	5		60.0	60.0	12		83.3	66.7
Region 10																
Male	29	41.4	0	0	20	71.4	15.0	10.0	19	65.5	52.6	52.6	32	69.6	87.5	62.5
Female	41	58.6	0	0	8	28.6	0	0	10	34.5	80.0	80.0	14	30.4	78.6	64.3
Total	70		0	0	28		10.7	7.1	29		62.1	62.1	46		84.8	63.0
Region 11																
Male	119	41.0	0.84	0.84	75	72.8	8.0	6.7	39	83.0	79.5	74.4	82	74.5	72.0	50.0
Female	171	59.0	0	0	28	27.2	21.4	21.4	8	17.0	100	100	28	25.5	92.3	92.3
Total	290		0.34	0.34	103		11.6	10.7	47		83.0	78.7	110		76.9	60.2
Region 12																
Male	267	59.7	0	0	75	75.8	2.6	2.6	42	84.0	47.6	33.4	68	70.1	72.1	58.8
Female	180	40.3	0	0	24	24.2	4.5	4.5	8	16.0	100	87.5	29	29.9	93.1	93.1
Total	447		0	0	99		3.1	3.1	50		56.0	42.0	97		78.4	69.1
All region																
Male	3933	65.4	0.15	0.13	1935	84.1	7.4	6.3	1172	81.3	72.5	59.0	2126	74.1	82.3	57.5
Female	2080	34.6	0.10	0.10	366	19.9	18.0	16.8	269	18.7	86.8	78.2	744	25.9	94.3	89.3
Total	6013		0.13	0.12	2301		9.0	7.8	1441		75.1	62.5	2870		85.2	65.2

Note: %^a: Percent column. gender percentage
 %^b: Percent row. having mask
 %^c: Percent row. wearing correct mask
 *Covid-19 number of cases in Turkey (22)

On 10 March 2020, when there was no Covid-19 case in Turkey, 65.4% of 6013 people, who passed the pedestrian crossings were males and this rate

was found to be as follows in the other dates: 84.1%, 81.3% and 74.1% (fig. 1).

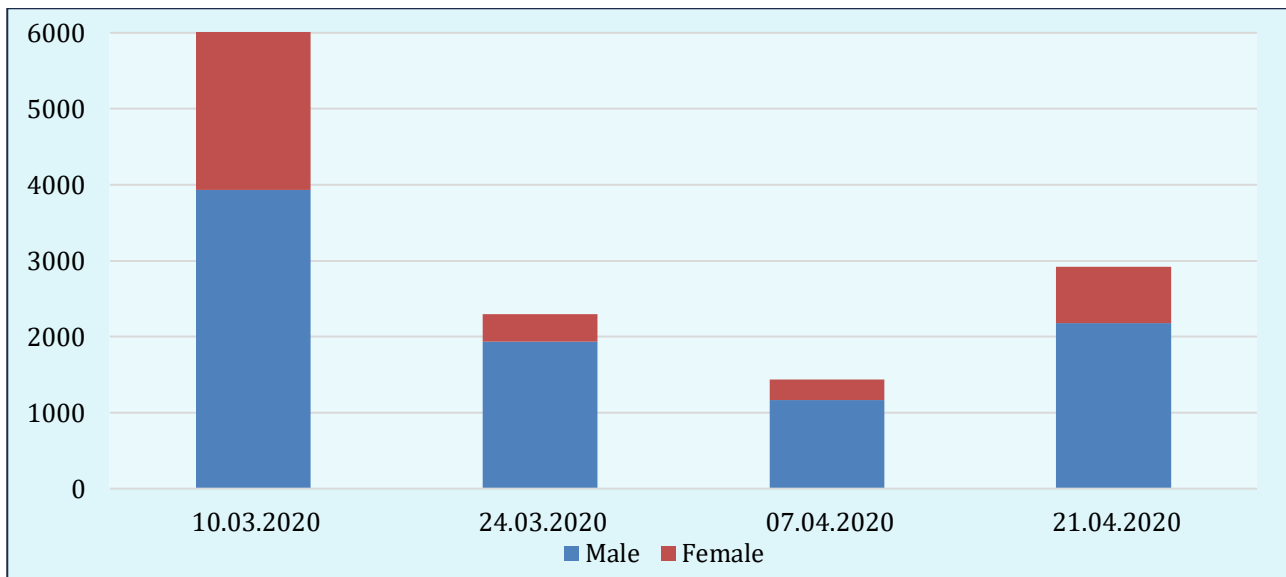


Figure 1. Distribution of the number of people in the crosswalk by gender.

When comparing the appropriate mask-wearing according to gender, it was concluded that women had a statistically significant rate on the appropriate mask-wearing compared to men on 24 March 2020, 07 April 2020 and 21 April 2020 ($p < 0.001$) (respectively, $\chi^2 = 45,140$ and $34,091$ and $246,876$).

It was also found out that the rate of women’s appropriate mask-wearing behaviour increased over time during the COVID 19 pandemic period, whereas men complied with appropriate mask-wearing at a lesser extent despite the increase in the behaviour of wearing a mask on 21 April 2020, this case is shown in Figure 2.

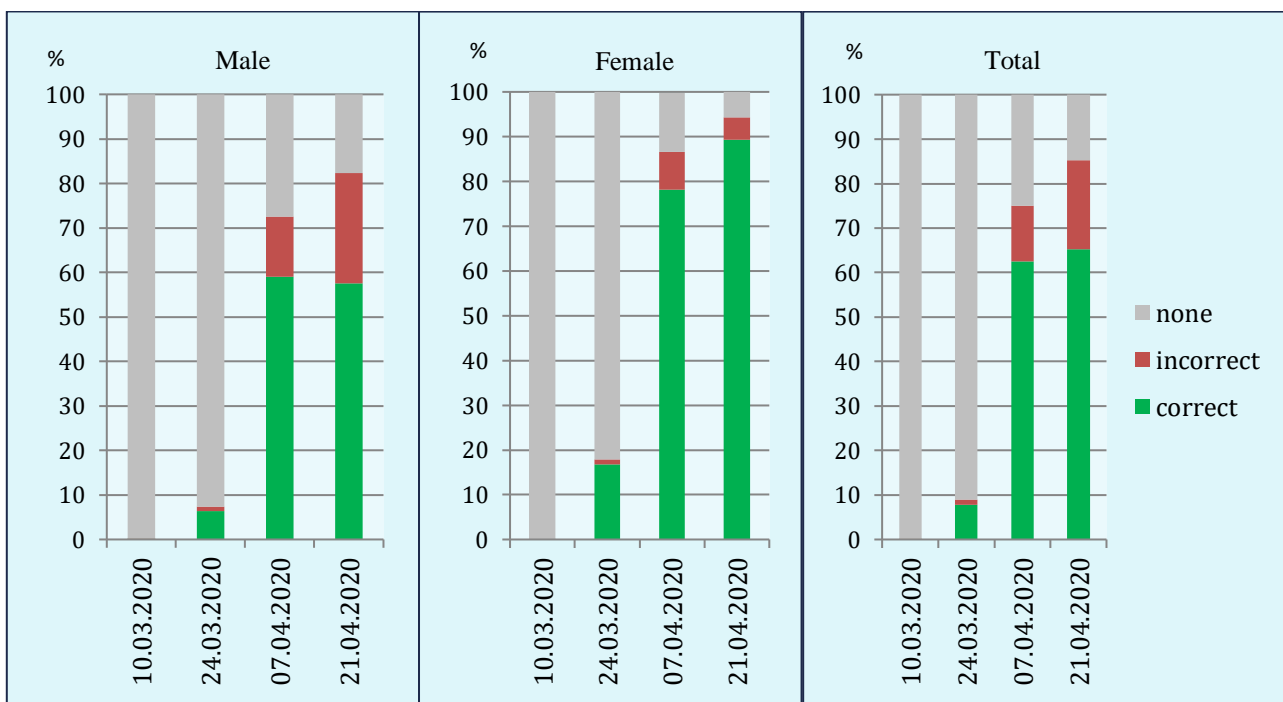


Figure 2. Distribution of mask wearing rates by gender.

DISCUSSIONS

The containment measures have of paramount importance in the control of the COVID-19 pandemic. There are studies arguing that the containment measures are necessary to take the outbreak under control and these should be administrated as soon as possible. Many countries have initiated COVID-19 containment measures due to the pandemic (13-16). The first COVID-19 wave seen outside Hubei, China, where the outbreak was first detected, declined due to aggressive non-pharmaceutical control measures. The efficiency of containment measures was seen when the spread of pandemic was prevented to a great extent with second strict measures (5, 16, 17). It was identified that the lockdown administrated firstly in Lombardy, Italy and then the whole country and the lockdown in Spain prevented the spread of disease to a certain extent. It was reported in another study that the lockdown had a positive effect particularly in central and southern regions of Italy (18, 19). The containment measures taken in Turkey are as follows: schools were vacationed on 16 March 2020, a curfew circular was issued to those with chronic illnesses aged 65 and over on 21 March 2020, city entrance and age restriction measures were taken on 03 April 2020, and the first two days curfew was announced on 10 April 2020 (20, 21). While containment measures were administrated partially in Turkey, there are some studies suggesting that only very strict restrictions caused a decline in virus spreading (7).

In this study, 76,04% decrease was found in the number of people passing through pedestrian crossings on 07 April 2020 compared to 10 March 2020. Although the number of case was increasing in Turkey, an increase was determined in the number of people using the above-mentioned pedestrian crossings on 21 April 2020 (22). The duration of protection measures plays an important role in fighting against the spread of disease in terms of compliance with control measures (23). It is also urged in our study that long term protection measures have a negative effect on the attitudes of people to go out. In a study conducted in Australia on compliance with home quarantine for pandemic influenza, 94.1% of the participants stated that they were willing to comply with quarantine at home, and avoided public events and meetings at very high rates. In addition, it was identified in this study that men complied with

the home quarantine less than women (24). In this study, the rate of men going outside, which was higher even in the pre-pandemic period, increased even more during the pandemic process. The women were observed to comply with the home quarantine more.

In this study, containment measures and wearing mask behaviours of people were investigated. Wearing a mask protects people who wear masks and the people around them, thus, the use of face masks has a critical importance in reducing the spread of disease (18, 25). The face masks should be worn carefully on mouth and face, and should be tied safely (26). In this research, the appropriate mask-wearing of people was determined to be 7.8% on 24 March 2020, 62.5% on 7 April 2020 and 65.2% on 21 April 2020. It was observed that women wore masks at a significantly higher rate than men at these periods, and their appropriate mask-wearing was also at higher rates. In Large Scale International Poll Survey made with 29.000 people from different countries during COVID-19 pandemic, the mask-wearing rates according to countries are as follows: Italy 81%, France 34%, Germany 20% China 83%, Japan 77% (27). 86% of 160 adult participants in Taiwan reported that they used medical masks for several times during a day (28). In a study conducted on primary school students in China, while 51.60% of the students showed a good behaviour in wearing a mask, a significant difference was not found between the mask-wearing behaviours of male and female students (29). Another research carried out in England on 2.025 participants regarding the relationship between the rate of wearing a face mask during COVID-19 pandemic and demographic, health and psychological variables, showed that the face mask wearing rate was 16.7%, and the rate of wearing a mask in males was concluded to be higher than in females (30). An investigation conducted on 2.459 participants, reported that men considered wearing a mask as shameful, being an indicator of weakness, stigmatizing, as they felt negative emotions while wearing masks, thus did not comply with the necessity of wearing masks as much as women. The same study urged that men did not believe that the pandemic would affect them severely (31). In another study carried out in Hong Kong in 2017, when there was no pandemic, less than one-fifth of the participating family members reported that they always wore face masks in inflammatory diseases

and respiratory tract infections, while men stated that they used the mask less frequently (32). The mask-wearing behaviours were determined by observation in our study rather than a questionnaire. The rates of men's not complying with the rule of mask-wearing and their general mask-wearing rates are in accordance with the literature.

This study has some limitations. First, although

there are some criteria, the assessment in this observational study is subjective. Secondly, instant video recordings of pedestrian crossings were examined. The passage of people is dynamic and constantly changing. Third, the study was conducted at the beginning of the pandemic. Results cannot be generalized for a pandemic that lasts more than one year. Moreover, the small sample size in a single city can be considered as another limitation.

CONCLUSIONS

1. Compliance to mask-wearing and control measures was higher at the beginning of the pandemic.
2. In the records reviewed, women were less likely to be seen at the pedestrian crossing than men before the pandemic. After the pandemic started, women adapted to containment measures more than men, thus being more restricted. Women behaved more responsibly. In addition, a high percentage of women wore and used masks correctly.
3. About 40 days after the pandemic started, people wore the mask less correctly. It is considered that the decrease in wearing a mask and complying with containment measures despite a rapid increase in COVID-19 case numbers in Turkey may be related to the decrease in disease risk perception.

CONFLICT OF INTERESTS

Authors declare that there is no conflict of interest. No informed consent was received.

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