

RESEARCH
ARTICLE

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Adults' Awareness about Mask Use**ABSTRACT**

Objective: Respiratory pandemics cannot be prevented from spreading if the mask is not worn correctly. This study aims to determine adult's awareness of mask use and the factors that influence mask use.

Materials and Methods: This descriptive study was conducted in a university hospital during the COVID-19 pandemic (June 2020). Participants were asked to complete a questionnaire on socio-demographic characteristics and mask use.

Results: In the presented study, 705 people were included. The mean age of the participants was 35.86±8.77 (18-65) years old and 71.2% (n=502) were male, and 45.5% (n=321) were university graduates. Complete compliance with the pandemic rules was achieved by 83.7% of women (n=170) and 58.0% of men (n=291) (p<0.001). While 77.6% (n=547) used surgical/medical masks, 60.4% (n=426) reported using the same mask more than once. Of these, 44.8% (n=191) washed the mask, 36.9% (n=157) ventilated the mask and 18.3% (n=78) did nothing before reuse. Among mask wearers, 51.9% (n=366) reported breathing difficulties and 33.2% (n=234) reported that wearing a mask had a negative psychological impact.

Conclusions: It has been determined that there is a lack of information on the use of masks, even during the COVID-19 pandemic where the use of masks is mandatory. It is important that the mask is used correctly to provide effective protection. Efforts should be accelerated to ensure that all segments of the society are sufficiently aware of this issue.

Keywords: Masks, COVID-19, Pandemics, Behavior, Public Health.

Yetişkinlerin Maske Kullanımına İlişkin Farkındalığı**ÖZET**

Amaç: Solunum yolu ile yayılan salgınlara önlenmesi için maskenin doğru şekilde takılması gerekir. Bu çalışmanın amacı, yetişkinlerin maskeye ilişkin farkındalığını ve maske kullanımını etkileyen faktörleri belirlemektir.

Gereç ve Yöntem: Bu tanımlayıcı çalışma, COVID-19 pandemisi sırasında (Haziran 2020) bir üniversite hastanesinde gerçekleştirilmiştir. Katılımcılar sosyo-demografik özelliklerin ve maske kullanımına ilişkin ifadelerin yer aldığı bir anketi cevaplamıştır.

Bulgular: Sunulan çalışmaya 705 kişi katıldı. Katılımcıların yaş ortalaması 35,86±8,77 yıl (18-65) olup, %71,2'si (n=502) erkek, %45,5'i (n=321) üniversite mezunu idi. Kadınların %83,7'si (n=170) ve erkeklerin %58,0'ı (n=291) pandemi kurallarına tam uyum sağladığını belirtti (p<0,001). Katılımcıların %77,6'sı (n=547) cerrahi/tıbbi maske kullanırken, %60,4'ü (n=426) aynı maskeyi birden fazla kez kullandığını bildirdi. Bunların %44,8'i (n=191) maskeyi yıkıyor, %36,9'u (n=157) maskeyi havalandırıyor ve %18,3'ü (n=78) herhangi bir işlem yapmadan yeniden kullanıyordu. Maske kullananların %51,9'u (n=366) solunum güçlüğü yaşadığını ve %33,2'si (n=234) maske takmanın psikolojisini olumsuz etkilediğini belirtti.

Sonuç: Maske kullanımının zorunlu olduğu COVID-19 pandemisi sırasında bile maske kullanımına ilişkin bilgi eksikliği olduğu tespit edilmiştir. Etkili koruma sağlamak için maskenin doğru kullanılması önemlidir. Toplumun tüm kesimlerinin doğru maske kullanımını sağlamak için çalışmalar hızlandırılmalıdır.

Anahtar Kelimeler: Maskeler, COVID-19, Pandemi, Davranış, Halk Sağlığı.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) has impacted the daily lives of people all over the world. After the COVID-19 epidemic was declared in January 2020, various measures were implemented to reduce the spread of the virus, and governments even imposed many sanctions. As of September 2020, wearing a mask has become mandatory in all indoor and outdoor areas except residences in Turkey (1). The obligation to wear a mask outdoors was abolished in March 2022 and began to be implemented in closed environments according to ventilation and distance rules (2). Although the use of masks has become mandatory in epidemics, it may not prevent the spread of the epidemic unless people wear the mask correctly.

Taking into account the current global spread of COVID-19, the measures taken by the World Health Organization (WHO) have been updated and continue to recommend that the public use masks in certain situations. Masks are recommended when a person has or is suspected to have COVID-19 and for people who are in crowded, closed or poorly ventilated areas. It was also announced that recommendations for mask use may change, taking into account local epidemiological trends or increasing levels of hospitalization, vaccination coverage and immunity levels in the community, and the environment in which people find themselves (3). Of course, masks may become necessary again if other viruses spread. Therefore, mask use is an ongoing, important health behavior problem (4).

Medical masks are used to prevent the passage of respiratory secretions excreted by the wearer. It is the type of mask that should be used under normal conditions. Medical masks are disposable and need to be changed as soon as they become moist. Properly worn medical masks are sufficiently protective against aerosols and large droplet splash with more than 95% bacterial filtration efficiency. FFP2 (N95) masks are designed to reduce the wearers' exposure to airborne pollutants, including viruses and bacteria. Vented masks have a valve system that closes while breathing and opens while exhaling. It does not prevent infected people from transmitting the virus to someone else (5).

In a pandemic caused by respiratory diseases, the use of masks affects not only individual health but also the public health of a country. Mask usage habits vary according to cultures. For example; It was determined that Koreans are more accustomed to using masks than other countries (6), and the rate of wearing masks in China is higher than in Poland (7). The use of masks was not common in Turkey before the pandemic. Therefore, research on this topic is limited. The aim of this study is to determine people's awareness of mask use and the factors affecting mask use in a period when masks are mandatory in the COVID-19 pandemic.

MATERIAL AND METHODS

This descriptive study was conducted at Necmettin Erbakan University Medical Faculty Hospital. The ethics committee of Necmettin Erbakan University approved the study. During June 2020, every person, except staff and healthcare professionals, passing through the checkpoint between 10.00-11.00 and 14.00-15.00 on weekdays was informed about the study, and a survey was administered to people over 18 years of age and literate who agreed to participate in the study. The study was conducted during the COVID-19 pandemic when everyone entering the hospital was obliged to wear a mask as part of the pandemic measures.

The first part of the questionnaire included questions on the socio-demographic characteristics of the participants and assessment of self-compliance with the measures taken against the COVID-19 outbreak, the frequency of hand washing, the type of mask used, how they obtained the mask and whether they reused the masks. In the second part, there are 15 statements about how they feel when wearing a mask, why a mask should be worn, issues to consider when using masks, and difficulties encountered with masks. These statements were given the options 'agree', 'undecided' and 'disagree'. Those who gave incomplete answers to the survey questions were excluded from the study.

The data obtained were evaluated using the Statistical Package for Social Sciences for Windows 21.0 (SPSS Inc., Chicago, Illinois, USA) statistical program. Initially, the data were analyzed with descriptive statistics. Categorical data were reported as frequencies while numerical data were expressed by means and standard deviations. For the analytical statistics, Chi-square test for the categorical data. A p-value of less than 0.05 was considered statistically significant.

RESULTS

In the study, 705 people were included. The mean age of the participants was 35.86 ± 8.77 years (min=18; max=65) and 71.2% (n=502) were male, and 45.5% (n=321) were university graduates. Among men, 38.3% (n=270) had a beard and 4.5% (n=32) had shaved their beard due to mask use. Of the participants, 46.8% (n=330) were smokers and 7.1% (n=50) were trying to quit smoking due to the pandemic. The comparison of the socio-demographic characteristics by gender is shown in Table 1.

When the participants were asked most challenging COVID-19 pandemic measures according to them, they reported staying away from relatives and friends (49.7%; n=351), curfew (27.3%; n=192), wearing a mask (19.5%; n=138) and other difficulties (3.5%; n=24), respectively. Of the participants, 77.6% (n=547) used a surgical/medical mask, 57.9% (n=408) purchased the mask, and 60.4% (n=426) used the same mask more than once.

Table 1. Comparison of participants' socio-demographic characteristics by gender

	Total Mean±SD	Female Mean±SD	Male Mean±SD	p
Age	35.86±8.77	35.46±9.3	36.02±8.5	0.443
	n (%)	n (%)	n (%)	
Education Level				
High school and below	384 (54.5)	93 (45.8)	291 (58.0)	0.004
University	321 (45.5)	110 (54.2)	211 (42.0)	
Working status				
Working	554 (78.6)	83 (40.9)	471 (93.8)	<0.001
Not working	151 (21.4)	120 (59.1)	31 (6.2)	
Income Level				
Less than expenses	297 (42.1)	94 (46.3)	203 (40.4)	0.216
Equal to expenses	303 (43.0)	85 (41.9)	218 (43.4)	
More than expenses	105 (14.9)	24 (11.8)	81 (16.2)	
Having a chronic disease				
Yes	155 (22.0)	135 (66.5)	415 (82.7)	<0.001
No	550 (78.0)	68 (33.5)	87 (17.3)	
Smoking status				
Smoking	380 (53.9)	59 (29.1)	321 (63.9)	<0.001
Not smoking	325 (46.1)	144 (70.9)	181 (36.1)	
Total	705 (100)	203 (100)	502 (100)	

Participants who used the mask more than once were asked if they did anything before reusing it. Respectively, 191 people (44.8%) stated that they washed the mask, 157 (36.9%) ventilated it and 78 (18.3%) reused it without any action. Of the female

participants, 83.7% (n=70) and 58.0% (n=291) of the males reported complete compliance with the COVID-19 pandemic measures (p<0.001). Table 2 shows the comparison of participants' attitudes towards the COVID-19 pandemic by gender.

Table 2. Comparison of participants' attitudes towards the COVID-19 pandemic by gender

	Total n(%)	Female n(%)	Male n(%)	p
Compliance with COVID-19 pandemic measures				
Completely compliant	461(65.4)	170 (83.7)	291(58.0)	<0.001
Partially compliant	244(34.6)	33(16.3)	211(42.0)	
Hand washing frequency in the COVID-19 pandemic				
Increased frequency of hand washing	616(87.4)	174(85.7)	442(88.0)	0.398
Unchanged	89 (12.6)	29(14.3)	60(12.0)	
Type of mask used				
Surgical/medical mask	547 (77.6)	160 (78.8)	387 (77.1)	0.619
Non-medical mask	158 (22.4)	43 (21.3)	115 (22.9)	
Mask supplied				
By purchasing	408 (57.9)	136 (67.0)	67 (33.0)	0.002
Free of charge	297 (42.1)	272 (54.2)	230 (45.8)	
Frequency of using the same mask				
More than once	426(60.4)	123(60.6)	303(60.4)	0.954
Only one time	279(39.6)	80(28.7)	199(39.4)	
Total	705 (100.0)	203 (100.0)	502 (100.0)	

While 55.7% (n=393) of the participants felt safe when wearing a mask, 25.4% (n=179) believed that the type of mask they wore would protect them from Coronavirus. Wearing a medical mask 25.6% (n=140) and 24.7% (n=39) of those who wore non-medical masks agreed that they believed the mask they wore would protect them from coronavirus (p<0.576). Among mask wearers, 51.9% (n=366) had breathing difficulties and 33.2% (n=234) reported that wearing a mask had a negative psychological impact. Of smokers, 57.4% (n=218)

and 73.8% of non-smokers (n=240) agreed that removing and wearing the mask while smoking would increase the risk of contamination (p<0.001). There was a significant association between education levels of those who felt it was unnecessary to wear a mask (p=0.001). Among those with a university degree, 2.5% (n=8) and 7.3% (n=28) of those with a high school degree or less agreed that it was unnecessary to wear a mask. Comparison of the answers of the participants who agreed according to their level of education is shown in Table 3.

Table 3. Comparison of the answers of the participants who agreed according to their level of education

	Education Level			p
	Total n (%)	High school and below n (%)	University n (%)	
I feel safe when I wear a mask	393 (55.7)	213 (55.5)	180 (56.1)	0.872
I have difficulty breathing when I wear a mask	366 (51.9)	192 (50.0)	174 (54.2)	0.266
Wearing a mask protects me from Coronavirus	179 (25.4)	102 (26.6)	77 (24.0)	0.434
Wearing a mask negatively affects my psychology	234 (33.2)	124 (32.3)	110 (34.3)	0.579
If I am a patient/carrier. I should wear a mask to avoid contamination	661 (93.8)	353 (91.9)	308 (96.0)	0.028
The mask caused allergies. scars. pimples. etc. on my face	90 (12.8)	47 (12.2)	43 (13.4)	0.647
I think wearing a mask is unnecessary.	36 (5.1)	28 (7.3)	8 (2.5)	0.004
I have to wear a mask not to get infected	553 (78.4)	309 (80.5)	244 (76.0)	0.152
In a two-person environment. only one needs to wear a mask.	54 (7.7)	32 (8.3)	22 (6.9)	0.462
I can take off my mask when I talk	56 (7.9)	37 (9.6)	19 (5.9)	0.069
The mask makes me touch my face more often	279 (39.6)	163 (42.4)	116 (36.1)	0.088
The mask is more protective in men without a beard	226 (32.1)	117 (30.5)	109 (34.0)	0.323
The patient/carrier should not wear a mask with a valve	227 (32.2)	135 (35.2)	92 (28.7)	0.066
I can use my mask longer by donning and doffing.	70 (9.9)	43 (11.2)	27 (8.4)	0.218
Taking the mask off and putting it back on while smoking increases the risk of infection	458(65.0)	229 (59.6)	229 (71.3)	0.001

DISCUSSION

One of the important changes brought about by the COVID-19 pandemic is the use of masks that have become an inevitable part of our daily lives. Wearing masks has been shown to reduce the risk of healthcare workers becoming infected with COVID-19 by 70% (8). Issues such as the correct use of the mask, what kind of mask should be used, when it should be changed will continue to pose a problem until an adequate level of consciousness is reached in the whole society. It has been shown in many studies that there is a lack of knowledge on this subject, from ordinary citizens to health care professionals (4,6,9). In our study, various information deficiencies were found. The most difficult step in combating the pandemic is to create behavioral change in the society.

The three most important basic principles of protection from COVID-19 are mask, social distance and compliance with hygiene rules (10). In the present study, when respondents were asked about their compliance with the measures announced in the COVID-19 pandemic, nearly two-thirds reported that they completely complied with the rules. It was determined that female participants were more compliant with the pandemic rules compared to male participants. There are studies in the literature that support this result (4,11). In the Woodcock et al. study, the rate of women reporting wearing masks were higher than men (12).

In a study conducted with around 10,000 participants in China during the early stages of the pandemic, when the COVID-19 virus became increasingly widespread, two third of participants reported reusing disposable masks (13). Another study with nursing students and their relatives, one third reported using the same mask more than once (14). In this study, 60% of the participants used the same mask more than once, but when asked about their knowledge of the subject, 90% confirmed that they should not use the mask for long periods of time by putting it on and taking it off. This contradiction is indicating that although the information is known, it is not easy to create positive behavioral change. The reason for the differences in mask use found in the studies may be the prevalence of the virus at the time of the study, and cultural and occupational differences among the participants.

In a study conducted in two North American cities, 14% of the approximately 25,000 mask wearers were found to be wearing their masks incorrectly (15). In the present study, about a quarter of the participants reported using non-surgical masks (home-sewn fabric masks). Of those who used the same mask more than once, about half washed it, one-third ventilated it, and the rest reused it without any action. This high rate of misuse is a major obstacle in the fight against the pandemic. Failure to change the mask often enough may increase the incidence of self-infecting.

Masks were sold at high prices for a while due to insufficient stocks, but the problem was later solved by the government's effective price control and increased production. In order to encourage the use of masks in Turkey, free masks were even distributed by the government (16). However, the insufficient amount of masks in the early periods created a tendency for people to use masks incorrectly. These misuse habits include constant removal and re-use of the mask, washing and re-using, masks made from different fabrics and repeated use. Our research shows that these usage patterns are preferred at certain rates. Some wrong habits are difficult to replace with the correct ones even if a sufficient number of masks are available. Even among highly educated groups, such misuse is common.

One of the challenges of wearing a mask is perceived breathlessness (17). One study conducted at rest or with light to moderate exertion, reported minimal changes in oxygen or carbon dioxide levels while wearing a face mask (18). In the present study, half of the participants reported breathing difficulties when wearing a mask. It should be noted that an individualized approach may be required, particularly for lung patients who may have difficulty tolerating mask wear. The need for hand hygiene in disease prevention is well recognized by

most communities (19). In the study by Ugurlu et al. it was found that approximately 90% of the participants had increased hand washing frequency during the pandemic period (20). The rate was similar in the present study. The metanalysis showed that hand hygiene can be beneficial with a relative reduction of 11% in respiratory diseases (21).

The limitation of the study may be that the study population consisted only of people presenting to tertiary healthcare facilities and that it was conducted during a period when mask use was mandatory. However, we believe that our experience of mask use during the pandemic period will be important for comparison with studies to be conducted in other periods.

As a result, it is seen that there is a lack of knowledge on mask use even during the COVID-19 pandemic, when mask use is mandatory. The use of masks was not common in Turkey before the pandemic. Therefore, research on this topic was limited and focused on healthcare workers. This study is important as it is conducted on adults except healthcare workers. For the mask to provide effective protection, it must be used correctly. It is necessary to accelerate interventions in order to reach a sufficient level of awareness in all segments of society.

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