# Individuals' Emotions, Thoughts, and Behaviors Regarding the Use of Masks During the COVID-19 Pandemic: A Descriptive Study

## COVID-19 Pandemisi Süresince Bireylerin Maske Kullanımına İlişkin Duygu, Düşünce ve Davranışları: Tanımlayıcı Bir Çalışma

Araştırma
Research

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**Abstract**

**Aim:** The study aimed to find out individuals' mask-wearing-related emotions, thoughts, behaviors, problems, and recommendations during the COVID-19 pandemic.

**Materials and Method:** This descriptive and cross-sectional research was conducted in June- October 2022 with 399 individuals selected with the snowball sampling method. The research data were collected with a Google form.

**Findings:** Of all participants, 65.9% were female, 70.1% were undergraduate program graduates, 77.2% were actively working, 76.2% had no chronic disease, and 48.9% previously had a COVID-19 infection. The analysis of individuals' mask-wearing-related emotions demonstrated that 77.1% of the participants believed that the mask would protect them against COVID-19 infection and 62.9% of them got angry with those not wearing masks. The examination of individuals' mask-wearing-related thoughts indicated that 78.1% of the participants thought that masks were effective in preventing COVID-19 infection and 68.9% of them thought that all human beings should wear masks for protection against COVID-19 disease. As per the review of individuals' mask-wearing-related behaviors, 60.7% of the participants voluntarily wore masks and 53.4% of them wore a mask soon after leaving home and did not wear off it until returning home. The analysis of individuals' mask-wearing-related problems showed that 75.9% of the participants thought that throwing used masks into nature caused environmental pollution, 68.9% of them had difficulty working with a mask on throughout the day, and 60.7% thought that the supervision over the quality and effectiveness of masks was inadequate. According to the examination of individuals' mask-wearing-related recommendations, 73.6% of the participants recommended that masks allowing the skin to breathe be produced and 68.9% of them recommended that masks be distributed to people free of charge. As per gender, education level, employment status, place of residence, the status of having a chronic disease, and the status of previously having a COVID-19 infection, statistically significant differences were identified in participants' mask-wearing-related emotions, thoughts, behaviors, problems, and recommendations ($p<0.05$).

**Conclusion:** Finding out about individuals' mask-wearing-related behaviors and problems and making plans based on these findings are important in the fight against the COVID-19 pandemic. Such sort of pandemics threatening public health are likely in the future. Therefore, it is important to design training programs and arrangements enhancing societal sensitivity to mask-wearing.

**Keywords:** pandemic; mask; emotion; thought; behavior; COVID-19

**Özet**

**Amaç:** Bireylerin maske kullanmaya yönelik duygu, düşünce ve davranışlarının, yaşadıkları sorunlar ve önerilerinin belirlenmesi amaçlanmıştır.

**Gereç ve Yöntem:** Tanımlayıcı ve kesitsel tipteki bu çalışma, Haziran - Ekim 2022 tarihleri arasında, kartopu örnekleme yöntemini kullanılarak 399 kişiyle gerçekleştirilmiştir. Veriler araştırmacılar tarafından hazırlanan Google form kullanılarak çevrimiçi olarak toplanmıştır.

**Bulgular:** Katılımcıların %65,9'u kadın, %70,1'i üniversite mezunudur, %77,2'si aktif olarak çalışmaktadır, %76,2'sinin kronik hastalığı yoktur, %48,9'u COVID-19 geçirmiştir. COVID-19 pandemisi süresince bireylerin maske kullanımına yönelik duyguları incelendiğinde; katılımcıların %77,1'i maskenin COVID-19 enfeksiyonuna karşı kendini koruyacağına inanmaktadır, %62,9'u maske takmayanlara kızdığını belirtmiştir. COVID-19 pandemisi süresince bireylerin maske kullanımına yönelik düşünceleri incelendiğinde, katılımcıların %78,1'i maskenin enfeksiyonu önlemede etkili olduğunu, %68,9'u insanların hastalıktan korunmak için maske takması gerektiğini düşünmektedir. COVID-19 pandemisi süresince bireylerin maske kullanımına yönelik davranışları incelendiğinde, katılımcıların %60,7'si maskeyi gönüllü bir şekilde takmaktadır, %53,4'ü evden çıktığı anda maske takmakta ve eve dönene kadar çıkarmamaktadır. COVID-19 pandemisi süresince bireylerin maske kullanırken yaşadığı sorunlar incelendiğinde, katılımcıların %75,9'unun maskenin doğaya atılmasının çevre kirliliğine neden olduğunu düşündüğü, %68,9'unun maske ile gün boyu çalışmakta zorlandığı, %60,7'sinin maskelerin kalitesi ve etkinliği konusunda yeterli denetim olmadığını düşündüğü belirlenmiştir. COVID-19 pandemisi süresince bireylerin maske kullanımına yönelik önerileri incelendiğinde, katılımcıların %73,6'sı cildin nefes alabileceği şekilde maskeler üretilmesini, %68,9'u maskelerin ücretsiz dağıtılmasını önermiştir. Katılımcıların maske takmaya dair duygu, düşünce, davranış, sorun ve önerileri ile cinsiyet, öğrenim düzeyi, çalışma durumu, yaşanan yer, kronik hastalığının olması, COVID-19 geçirme arasında istatistiksel olarak anlamlı farklılık olduğu belirlenmiştir ($p<0,05$).

**Sonuç:** Pandemi ile mücadelede maske kullanımı konusunda davranış ve yaşanan sorunları belirlemek ve bu sonuçlara yönelik planlamalar yapmak önemlidir. Toplum sağlığını tehdit eden bu tür pandemilerin gelecekte de yaşanması ihtimali söz konusudur. Bu nedenle maske kullanımı konusunda toplumsal duyarlılığı artıran eğitimler ve düzenlemeler yapılması önemlidir.

**Anahtar Sözcükler:** pandemi; maske kullanımı; duygu; düşünce; davranış; COVID-19

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## Introduction

Mask using is not a practice that humanity has experienced for the first time. In daily life, masks are used for industrial, medical, and individual purposes. It is known that masks were used in factories, plants, and construction yards for industrial purposes, they were used by health workers in medical cases, and also, they were used for individual purposes in different sorts of art such as theater and drama or during several pandemics experienced throughout history (1,2). Today, along with the COVID-19 pandemic, the use of masks became important again all across the world.

Since 2019 when the first COVID-19 case was detected, the entire world has struggled against COVID-19 disease. To be protected from the virus that was proven to be transmitted between people mostly through respiratory droplets, numerous authorities, in particular, the World Health Organization, drew attention to the importance of using personal protective equipment. Among the personal protective instruments, the mask has a crucial place as it prevents the spread of respiratory droplets significantly. Surgical masks, N95 masks, or cloth masks are available in different colors and forms for protection against COVID-19 infection. As well as providing a physical barrier to the virus, these masks equip individuals with positive hygiene practices, reduce individuals' fears, and enable sensitive individuals, who cannot tolerate especially the uncertainty, to be active in social life (3,4). Besides these positive effects, however, studies also showed that using masks for a long time had negative consequences (5-7). Headache, discomfort on the face, difficulty breathing, skin problems, anxiety, communication challenges, etc. can be cited among these negative consequences (5,8,9). In addition, a study has shown that wearing a mask increases negative emotions and aggressive behaviors in people (10). Due to such consequences, mask-wearing becomes a condition that is difficult for most individuals to tolerate. In the science world, even if there are debates about the effectiveness of mask-wearing, a large majority agree that mask-wearing prevented the transmission of airborne diseases (11,12). In the fight against airborne viruses, a mask alone is not enough but essential. Therefore, most countries made mask-wearing an obligation in closed spaces, public transportation, and crowded environments; in short, in every place outside the home, and individuals not wearing a mask were fined during the COVID-19 pandemic. Also in Turkey, a large number of experts, in particular, those from the Ministry of Health of Turkey and its science board, frequently stressed the importance of mask-wearing (13,14). The population that was aged 18 years or above was obliged to wear masks in Turkey, and a part of this population wore masks, some members of the population used masks improperly, and some of its members did not wear any masks at all during the COVID-19 pandemic. The emotions, thoughts, and perceptions of society about the use of masks become the determinants of the behavior of using/not using masks during the COVID-19 pandemic. Some studies show that the world is not yet sufficiently prepared for pandemics, considering the performance of countries from the beginning to the end of the coronavirus (15).

Most studies on this topic pertain to the negative situations experienced by individuals while wearing masks, as well as individuals' thoughts on the topic (6,16-18). Also, a part of the studies was conducted solely on health workers, and accordingly, there is a limited number of studies focusing on the entire society (19-23). Studies focused on society addressed a single aspect of mask-wearing, and there was no study analyzing the use of masks from multiple perspectives (24). Departing from this point, this study was performed to analyze individuals' behaviors of wearing/not wearing masks, their problems with mask-wearing, and their respective recommendations by revealing their positive/negative emotions and thoughts. Research results shed light on individuals' approaches toward mask-wearing, and also, it is considered that the results will be useful to spread the use of masks and solve the existing problems during the COVID-19 pandemic, which still continues today despite losing effect, and in the context of pandemics likely to occur in the future. In the research, answers to the below questions are sought:

- During the COVID-19 pandemic, how are individuals' emotions, thoughts, and behaviors

regarding the use of masks, and what are their problems and respective recommendations?
- Which factors affect individuals' approaches toward the use of masks during the COVID-19 pandemic?

## Materials and Method

**Research Type:** This research is descriptive and cross-sectional.

**Research Population and Sample:** The research population is the individuals aged 18 years or above, who are required to wear masks. Snowball sampling was used as the sampling method. This sampling method was preferred in the research as it was hard to reach the targeted sample group. The minimum sample size for the research was calculated as 384 participants with a confidence interval of 95.0% and a margin of error of 0.05. All individuals who were within the age interval specified above, who volunteered to participate in the research, and who filled in the survey form fully were included in the study. In this context, the study was conducted with the participation of 399 individuals.

**Data Collection Tools:** The research data were collected with a Google form developed by researchers in light of the review of the relevant literature (25-29). The survey form contained a total of 48 questions (10 questions on individuals' socio-demographic characteristics, 4 questions on their COVID-19 backgrounds, 24 questions on their emotions, thoughts, and behaviors regarding the use of masks during the COVID-19 pandemic, and lastly, 10 questions on problems experienced by individuals while wearing masks during the COVID-19 pandemic, as well as individuals' recommendations). To test the comprehensibility of questions, a pilot study was carried out with 15 individuals, and hence, certain questions were rewritten. The data that were collected from the pilot study were not included in the research.

**Data Collection:** The research data were collected online in June-October 2022. The survey form was shared via social media and WhatsApp groups, and individuals were asked to convey the survey form to their acquaintances as the snowball sampling method was used in the research. The data that were collected online during the research were recorded anonymously in a way not to include individuals' personal data such as name, telephone number, and e-mail address.

**Data Analysis:** The data collected during the research were analyzed with the Statistical Package for Social Science (SPSS) 26.0. Descriptive statistics (number, percentage, and mean), the t-test, and the chi-squared test were used in the analysis. In the research, the statistical significance was identified if the p-value was below 0.05 ($p<0.05$).

**Ethical Aspect of the Research:** Before the research, the ethical endorsement was received from the ethics committee (Date: 10 June 2022, No: 405127). An informed consent form was presented in the online survey form, and individuals agreeing to participate in the research were allowed to access survey questions.

**Research Limitations:** The research data are limited to individuals included in the research and to the period when the research was carried out.

## Findings

The mean age of participants was 45.0±13.2 (min:18 max:80) years. Table 1 shows the findings on participants' descriptive characteristics. Of all participants, 65.9% were female, 70.1% were undergraduate program graduates, 66.7% were residing in the province center, 76.2% had no chronic disease, 75.0% were professionals (experts, health workers, academicians, law professionals, business professionals, and so on), 77.2% were actively working, 48.9% previously had a COVID-19 infection, and 32.6% stated that, after having COVID-19 infection, they paid more attention to mask-wearing. In Table-1, percentage totals don't provide 100.0% and 399 in some variables. This is due to the differences in the answers of the participants. For example, a person who marked his employment status as retired perceived the question of where he worked as the place where he worked in the past and answered accordingly.

Table 2 indicates participants' views on the use of masks. Upon the analysis of individuals' emotions about the use of masks during the COVID-19 pandemic, it was discerned that 77.1% of the participants believed that the mask would protect them against COVID-19 infection, 62.9% of them stated that they got angry when

| **Table 1.** Participants' descriptive characteristics (n=399) | | | |
|---|---|---|---|
| **Characteristics** | | **n** | **%** |
| **Gender** | Female | 263 | 65.9 |
| | Male | 136 | 34.1 |
| **Education level** | Primary School | 18 | 4.5 |
| | High School | 34 | 8.7 |
| | Undergraduate Program | 280 | 70.1 |
| | Master's Program | 67 | 16.7 |
| **Place of residence** | Village | 19 | 4.8 |
| | District | 114 | 28.6 |
| | Province Center | 266 | 66.6 |
| **Employment status** | Working | 308 | 77.2 |
| | Not Working | 43 | 10.8 |
| | Retired | 48 | 12.0 |
| **Work setting** | School | 162 | 40.6 |
| | Hospital | 72 | 18.0 |
| | Factory | 9 | 2.3 |
| | Open Space | 15 | 3.7 |
| | Closed Environment | 61 | 15.2 |
| **Occupation** | Manager | 9 | 2.4 |
| | Professional | 296 | 78.4 |
| | Assistant Professional | 20 | 5.5 |
| | Service/Sales Worker | 13 | 3.6 |
| | Member of Elementary Occupations | 39 | 10.1 |
| **Status of having a chronic disease** | Yes | 95 | 23.8 |
| | No | 304 | 76.2 |
| **Status of previously having a COVID-19 infection** | Yes | 195 | 48.9 |
| | No | 204 | 51.1 |
| **Status of being affected by the COVID-19 pandemic** | I paid more attention to mask-wearing. | 130 | 32.6 |
| | The COVID-19 pandemic had no effect on me. | 72 | 18.1 |
| | I gave up wearing a mask. | 4 | 1.0 |

they saw those not wearing masks, and 21.8% felt discomfort due to wearing a mask. In the context of examining individuals' thoughts about the use of masks during the COVID-19 pandemic, it was found that 78.1% of the participants thought that masks were effective in preventing COVID-19 infection, 68.9% of them thought that human beings should wear masks to be protected against COVID-19 disease, and 31.6% of them thought that wearing a surgical mask would be enough to be protected against COVID-19 disease. As per the review of individuals' behaviors regarding the use of masks during the COVID-19 pandemic, 60.7% of the participants stated that they voluntarily wore masks, 53.4% of them said that they wore a mask as soon as they left home and did not wear off their masks until they returned home, 50.6% of them told that they replaced the mask with a new one when the mask got dirty, and 45.6% declared that they wore their masks only in crowded and closed environments. According to the analysis of problems experienced by individuals while using masks during the

| **Table 2.** Participants' views on the use of masks during the COVID-19 pandemic | | | |
|---|---|---|---|
| **VIEWS*** | | **n** | **%** |
| **Emotions about the use of masks during the COVID-19 pandemic** | 1. When I see those not wearing a mask, I get angry. | 251 | 62.9 |
| | 2. When I see those not wearing a mask, I do not care. | 41 | 10.3 |
| | 3. I believe that the mask will protect me. | 308 | 77.1 |
| | 4. I do not believe that mask-wearing is necessary. | 57 | 14.3 |
| | 5. When I wear a mask, I feel weird. | 43 | 10.8 |
| | 6. When I wear a mask, I feel that I am more beautiful. | 18 | 4.5 |
| | 7. When I wear a mask, I feel that I am uglier. | 13 | 3.3 |
| | 8. I care to wear a mask that is well-suited to my clothes. | 25 | 6.3 |
| | 9. Wearing a mask makes me uncomfortable. | 87 | 21.8 |
| **Thoughts about the use of masks during the COVID-19 pandemic** | 1. I think that mask-wearing is effective in preventing COVID-19 infection. | 312 | 78.1 |
| | 2. I think that only those in risky groups should wear masks. | 53 | 13.3 |
| | 3. I think that human beings should wear masks to be protected against COVID-19 disease. | 275 | 68.9 |
| | 4. The mask prevents individuals from expressing their emotions. | 62 | 15.5 |
| | 5. I can have an idea about individuals by looking at their masks. | 26 | 6.5 |
| | 6. I think that wearing a surgical mask will be enough. | 126 | 31.6 |
| | 7. I do not think that masks, except the N95 mask, are effective. | 47 | 11.7 |
| **Behaviors regarding the use of masks during the COVID-19 pandemic** | 1. I wear a mask as soon as I leave home, and I do not wear off the mask until I return home. | 213 | 53.4 |
| | 2. I wear a mask solely in crowded/closed environments. | 182 | 45.6 |
| | 3. I voluntarily wear a mask. | 242 | 60.7 |
| | 4. I wear a mask because wearing a mask is an obligation. | 75 | 18.8 |
| | 5. I replace my mask with a new one when it gets dirty. | 202 | 50.6 |
| | 6. I use a mask for a maximum of 8 hours. | 153 | 38.3 |
| | 7. I have put off my self-care since I began to wear masks. | 42 | 10.5 |
| | 8. When I see those not wearing a mask, I warn them. | 116 | 29.0 |
| **Problems experienced while wearing a mask during the COVID-19 pandemic** | 1. I experience physical problems when I wear a mask. | 235 | 58.8 |
| | 2. Mask-wearing incurs an economic cost. | 150 | 37.5 |
| | 3. Throwing used masks into nature leads to environmental pollution. | 303 | 75.9 |
| | 4. I have difficulty working with a mask on throughout the day. | 275 | 68.9 |
| | 5. The supervision over the quality and effectiveness of masks is inadequate. | 242 | 60.7 |
| **Recommendations about the use of masks during the COVID-19 pandemic** | 1. Individuals acting in violation of the obligation to wear a mask can be fined. | 139 | 34.8 |
| | 2. The diversity of masks (size, color, and so on) can be enlarged. | 185 | 46.4 |
| | 3. Masks can be distributed to people free of charge. | 275 | 68.9 |
| | 4. Masks can have the quality of being washable and reusable. | 116 | 29.1 |
| | 5. Masks allowing the skin to breathe can be produced. | 294 | 73.6 |
| | 6. Transparent masks showing facial expressions can be produced. | 94 | 23.6 |
| * More than one choice was marked. | | | |

**Table 3.** The comparison of participants' views on mask-wearing as per their descriptive characteristics

| | | Emotions | | Thoughts | | Behaviors | |
|---|---|---|---|---|---|---|---|
| | | F1 n (%) | F3 n (%) | T1 n (%) | T2 n (%) | B1 n (%) | B2 n (%) |
| Gender | Female | 179 (68.1) | 30 (11.4) | p>0.05 | p>0.05 | 150 (57.0) | 109 (41.4) |
| | Male | 72 (52.9) | 27 (19.9) | | | 63 (46.3) | 72 (52.9) |
| | | $x^2$= 8.78 **p<0.05** | $x^2$= 5.22 **p<0.05** | | | $x^2$=4.13 **p<0.05** | $x^2$=4.78 **p<0.05** |
| Education level | Primary School | 10 (55.6) | p>0.05 | 14 (77.8) | p>0.05 | p>0.05 | p>0.05 |
| | High School | 12 (35.3) | | 19 (55.9) | | | |
| | Undergraduate Program | 179 (66.1) | | 211 (77.9) | | | |
| | Master's Program | 50 (65.8) | | 65 (85.5) | | | |
| | | $x^2$=12.94 **p<0.05** | | $x^2$=11.91 **p<0.05** | | | |
| Employment status | Working | p>0.05 | p>0.05 | p>0.05 | 201 (65.3) | p>0.05 | 149 (48.4) |
| | Not Working | | | | 33 (76.7) | | 12 (27.9) |
| | Retired | | | | 41 (85.4) | | 20 (41.7) |
| | | | | | $x^2$=9.25 **p<0.05** | | $x^2$=6.68 **p<0.05** |
| Place of residence | Village | p>0.05 | p>0.05 | p>0.05 | p>0.05 | p>0.05 | p>0.05 |
| | District | | | | | | |
| | Province Center | | | | | | |
| | | | | | | | |
| Status of having a chronic disease | Yes | p>0.05 | 20 (21.1) | p>0.05 | 74 (77.9) | p>0.05 | p>0.05 |
| | No | | 37 (12.2) | | 201 (66.1) | | |
| | | | $x^2$=4.66 p=.031 | | $x^2$=4.68 p=.030 | | |
| Status of having a COVID-19 infection previously | Yes | p>0.05 | p>0.05 | p>0.05 | p>0.05 | p>0.05 | p>0.05 |
| | No | | | | | | |
| | | | | | | | |

F1- When I see those not wearing a mask, I get angry. F3- I do not believe that wearing a mask is necessary. T1- I think that mask-wearing is effective in preventing COVID-19 infection. T2- I think that human beings should wear masks to be protected against COVID-19 disease. B1- I wear a mask as soon as I leave home, and I do not wear off the mask until I return home. B2- I wear a mask only in crowded and closed environments. P1- When I wear a mask, I experience physical problems. P2- Throwing used masks into nature leads to environmental pollution. P3- I have difficulty working with a mask on throughout the day. P4- The supervision over the quality and effectiveness of masks is inadequate. S2- Masks can be distributed to people free of charge. S3- Masks allowing the skin to breathe can be produced.

| | | Problems | | | | Recommendations | |
|---|---|---|---|---|---|---|---|
| | | P1 n (%) | P2 n (%) | P3 n (%) | P4 n (%) | S2 n (%) | S3 n (%) |
| Gender | Female | 170 (64.6) | p>0.05 | p>0.05 | p>0.05 | p>0.05 | 204 (77.6) |
| | Male | 64 (47.1) | | | | | 89 (65.4) |
| | | $x^2$=11.42 **p<0.05** | | | | | $x^2$=6.75 **p<0.05** |
| Education level | Primary vSchool | 12 (66.7) | 7 (38.9) | 5 (27.8) | 7 (38.9) | 11 (61.1) | p>0.05 |
| | High School | 17 (50.0) | 18 (52.9) | 18 (52.9) | 12 (35.3) | 17 (50.0) | |
| | Undergraduate Program | 150 (55.4) | 217 (80.1) | 194 (71.6) | 178 (65.7) | 200 (73.8) | |
| | Master's Program | 55 (72.4) | 61 (80.3) | 58 (76.3) | 45 (59.2) | 47 (61.8) | |
| | | $x^2$=8.64 **p<0.05** | $x^2$=26.67 **p<0.05** | $x^2$=21.11 **p<0.05** | $x^2$=15.67 **p<0.05** | $x^2$=10.98 **p<0.05** | |
| Employment status | Working | p>0.05 | p>0.05 | 233 (75.6) | p>0.05 | p>0.05 | p>0.05 |
| | Not Working | | | 22 (51.2) | | | |
| | Retired | | | 20 (41.7) | | | |
| | | | | $x^2$=29.48 **p<0.05** | | | |
| Place of residence | Village | p>0.05 | p>0.05 | 6 (31.6) | p>0.05 | p>0.05 | p>0.05 |
| | District | | | 78 (68.4) | | | |
| | Province Center | | | 191 (71.8) | | | |
| | | | | $x^2$=13.41 **p<0.05** | | | |
| Status of having a chronic disease | Yes | p>0.05 | p>0.05 | p>0.05 | p>0.05 | p>0.05 | p>0.05 |
| | No | | | | | | |
| | | | | | | | |
| Status of having a COVID-19 infection previously | Yes | 125 (64.1) | p>0.05 | p>0.05 | 148 (75.9) | 122 (62.6) | p>0.05 |
| | No | 109 (53.4) | | | 127 (62.3) | 153 (75.0) | |
| | | $x^2$=4.68 **p<0.05** | | | $x^2$=8.66 **p<0.05** | $x^2$=7.19 **p<0.05** | |

COVID-19 pandemic, 75.9% of the participants stated that throwing used masks into nature led to environmental pollution, 68.9% of them said that they had difficulty working with a mask on throughout the day, 60.7% told that the supervision over the quality and effectiveness of masks was inadequate, and 58.8% of them put forward that they experienced physical problems while they were wearing a mask. As per the examination of individuals' recommendations about the use of masks during the COVID-19 pandemic, 73.6% of the participants recommended that masks allowing the skin to breathe be produced, 68.9% of them recommended that masks be distributed to people free of charge, and 46.4% of them recommended that the diversity of masks be enlarged.

Participants' views on the use of masks were compared as per their descriptive characteristics. As per descriptive characteristics such as age, occupation, and work setting, no statistically significant difference was identified in participants' views about the use of masks ($p>0.05$). The findings indicating a statistically significant difference between variables were exhibited in Table 3. According to the analysis of individuals' emotions about the use of masks during the COVID-19 pandemic, participants who were female, participants who were graduates of undergraduate programs, and participants who were graduates of master's programs stated that they got angry when they saw those not wearing a mask (F1). Participants who were male and participants who had no chronic disease said that they did not believe that wearing a mask was necessary (F3). Upon the evaluation of thoughts about the use of masks during the COVID-19 pandemic, it was found that participants who were graduates of master's programs thought that mask-wearing was effective in preventing COVID-19 infection (T1) and participants who were retired and participants who had a chronic disease thought that human beings should wear masks to be protected against COVID-19 disease (T2). In the context of analyzing the behaviors regarding the use of masks during the COVID-19 pandemic, it was discerned that participants who were female wore masks as soon as they left home and did not wear off their masks until they returned home (B1) and participants who were male and participants who were working wore masks solely in crowded and closed environments (B2). Upon the review of individuals' problems with the use of masks during the COVID-19 pandemic, it was identified that participants who were female, participants who were graduates of master's programs, and participants who previously had a COVID-19 infection had physical problems while they were wearing a mask (P1) and participants who were graduates of undergraduate and participants who were graduates of master's programs thought that throwing used masks into nature led to environmental pollution (P2). Participants who were graduates of master's programs, participants who were working, and participants who were residing in the province center had difficulty working with a mask on throughout the day (P3), and participants who were graduates of undergraduate programs and participants who previously had a COVID- 19 infection thought that the supervision over the quality and effectiveness of masks was inadequate (P4). According to the analysis of individuals' recommendations concerning the use of masks during the COVID-19 pandemic, it was found that participants who were graduates of undergraduate programs and participants who never had COVID-19 infection before recommended that masks be distributed to people free of charge (S2) and participants who were female recommended that masks allowing the skin to breathe be produced (S3).

**Discussion**

In this study that analyzed individuals' views about the use of masks during the COVID- 19 pandemic, the majority of participants were female, were undergraduate program graduates, were residing in the province center, were actively working, and had no chronic disease, and half of the participants previously had a COVID-19 infection. One-third of the participants who previously had a COVID-19 infection paid more attention to mask-wearing later on.

Besides, in this study, even if the majority of participants believed that the mask would protect them against COVID-19 infection, it is discerned that there were also individuals who did not believe that wearing a mask was necessary. In light of this finding, it is considered that a positive attitude toward the protectiveness of the mask was not firmly held by individuals, and hence, it was necessary to offer health training activities to individuals on this topic. The negative emotion felt by mask-wearing individuals toward those not wearing masks is about the fact that mask-wearing is not simply a personal preference because an individual not wearing a mask can become a source of infection for other individuals during the COVID-19 pandemic (30, 31). Emotions about the use of masks during the COVID-19 pandemic are affected by variables of gender, education level, and the status of having a chronic disease. Participants who were female, participants who were graduates of undergraduate, and participants who were graduates of master's programs put forward that they got angry when they saw those not wearing a mask. In the study by Ekiz et al. (2020), it

was stated that gender affected health anxiety, and women had higher levels of health anxiety (32). This result is in a similar vein to the finding of our research. It can also be said that the rise in the education level increased the sensitivity toward those not wearing a mask. In our study, participants who were male and participants who had a chronic disease asserted that they did not believe that wearing a mask was necessary. Experiencing a lower level of health anxiety and taking mask-wearing less seriously than women may have affected men's belief about the necessity of mask-wearing (33). In the study by Kocabaş et al. (2021), it was found that 2.0% of the individuals with a chronic disease didn't wear a mask even if they were in the risky group, and this finding is similar to the finding of our study (34). Individuals with a chronic disease are more vulnerable to infections, and this, in turn, can cause these individuals to get infected with a disease more easily and have the disease with a poorer prognosis. Therefore, it is important to conduct studies aimed at enhancing the sensitivity of individuals, who have a chronic disease, toward the use of masks.

Moreover, in this study, it is a positive finding that the majority of participants thought that masks were effective in preventing COVID-19 infection and human beings should wear masks to be protected against COVID-19 disease. In the relevant literature, there are studies in support of our above result (26,35). The percentage of individuals thinking that wearing a mask was necessary and the percentage of individuals holding a belief in the same direction are parallel. Thoughts about the use of masks during the COVID-19 pandemic are affected by the variables of education level, employment status, and the status of having a chronic disease. It is known that, along with the increase in the education level, the health and technology literacy and health awareness of individuals rose, the access of individuals to resources was facilitated, and information spread rapidly (26,36). Those thinking that masks were effective in preventing COVID-19 infection were mostly individuals holding a master's degree may be connected to the likelihood that these individuals follow scientific resources, get informed about developments more rapidly, and attach importance to the recommendations of the relevant authorities. Besides, in this study, participants who were retired and participants who had a chronic disease think that human beings should wear masks to be protected against COVID-19 disease. In light of the fact that retired individuals are in the group that is riskier and more defenseless against diseases due to their age and health conditions, it is considered that retired individuals had higher levels of awareness about adherence to protective measures. In the study by Önal et al. (2022), it is put forward that higher percentages of individuals having an acquaintance who had COVID-19 infection and individuals finding the fatality rate of the COVID-19 pandemic high wore masks accurately (27). In the study by Kalebek & Özdemir (2020), it was concluded that individuals aged 20-30 years attached less importance to COVID-19 disease than those aged 31 years or above, and consequently, they preferred using masks less (26). Additionally, an interesting finding of our study is the difference between emotions and thoughts expressed about the use of masks by individuals with chronic diseases. Individuals with a chronic disease do not believe that mask-wearing is necessary, however, they think that human beings should wear masks to be protected against COVID-19 disease. This result may have stemmed from the emphasis that old individuals and individuals with a chronic disease formed the riskiest group during the COVID-19 pandemic and from the perception that the mask would protect healthy individuals but may be inadequate for already sick individuals.

Next, in this study, more than half of the participants voluntarily wear masks and do not wear off masks outdoors until they return home. Moreover, half of the participants replace the mask with a new one when the mask gets dirty, and they wear masks solely in crowded/closed environments. The results of the study by Özer & Kolcu (2023) are similar to the finding of our study (28). The difference between women's and men's mask-wearing behaviors during the COVID-19 pandemic captures attention. Women are more careful about mask-wearing, and they wear a mask as soon as they leave home and they do not wear off the mask until they return home whereas men wear masks solely in crowded and closed environments. In the study conducted by Küçükkarapınar and colleagues, it was found that

adherence to protective measures was lower among men and younger individuals (37). The reason for this difference may be that women have higher levels of health anxiety and take mask-wearing more seriously than men. Additionally, as men in our study stated that they did not believe that wearing a mask was necessary, it is an anticipated behavior that they would wear a mask only when wearing a mask was obligatory. Also, in the study by Kocabaş et al. (2021), the percentage of women wearing masks is higher than that of men (34). In our research, participants who were working said that they wore masks solely in crowded and closed environments. This behavior of the individuals who were working is an expected result as they were in contact with people more than individuals who were not working and individuals who were retired.

Furthermore, in this study, participants state that throwing used masks into nature led to environmental pollution, working with a mask on throughout the day was difficult, the supervision over the quality and effectiveness of masks was inadequate, and they experienced physical problems while they were wearing a mask during the COVID-19 pandemic. More attention drawn to environmental problems is pleasing as it shows that participants had high sensitivity toward the protection of nature and the environment. Also, in this study, as per gender, education level, the status of previously having a COVID-19 infection, employment status, and place of residence, there were statistically significant differences in individuals' mask-wearing-related problems. Participants who were female, participants who were graduates of master's programs, and participants who previously had a COVID-19 infection experienced physical problems while they were wearing a mask. Obtaining this finding may be connected to the fact that these groups paid more attention to mask-wearing. Similar results were obtained also in studies conducted in India and the USA, and these studies found that more than half of the participants felt physically uncomfortable while they were wearing a mask during the COVID-19 pandemic (14,21,29,36,39,40). Participants who were graduates of undergraduate and master's programs paid attention to the fact that throwing used masks into nature led to environmental pollution. In this context, it is considered that, as an individual's education level increases, the individual's environmental sensitivity also increases. Moreover, in this study, participants who were graduates of master's programs, participants who were working, and participants who were residing in the province center put forward that working with a mask on throughout the day was difficult. Firstly, the group of participants who were graduates of master's programs is the group with the highest level of education in our study. In our study, it was discerned that, in a manner different from other groups, this group viewed mask-wearing as necessary and attached importance to it. Therefore, members of this group wore masks for long hours for protection and in every circumstance that they deemed necessary. Secondly, individuals working for the public or private sector may have reported the same problem because wearing a mask in closed environments was obligatory, and working with a mask on during working hours was difficult. In light of our experiences, we, as researchers, can say that it is difficult to move, speak, and make efforts with a mask on. Thirdly, it is considered that individuals residing in the province center wear masks for longer periods and more frequently as the province center has a larger population than districts or villages, and individuals in the province center are in environments where they are in closer contact with each other than individuals in districts and villages. As participants who were graduates of master's programs, participants who were working, and participants who were residing in the province center were supposed to wear masks both for long hours and in a larger number of situations due to all the above circumstances, they may have been more exposed to the disturbing effects of the mask. Besides, in this study, participants who were undergraduate program graduates and participants who previously had a COVID-19 infection think that the supervision over the quality and effectiveness of masks was inadequate. It is not surprising that individuals who previously had a COVID-19 infection had doubts about the protectiveness of masks and thought that they were infected with the COVID-19 disease due to poor-quality masks.

In this study, concerning the use of masks, participants recommend that masks allowing the

skin to breathe be produced, masks be distributed to people free of charge, and the diversity of masks be enlarged. Similar results were obtained also in previous studies (6,28,38,41). According to the examination of individuals' recommendations about the use of masks during the COVID-19 pandemic, participants who were graduates of undergraduate programs and participants who never had COVID-19 infection before recommended that masks be distributed to people free of charge, and participants who were female recommended that masks allowing the skin to breathe be produced. It is considered that the group of participants who never had COVID-19 infection before wore masks more often as they believed in the effectiveness of masks and adhered to COVID-19 measures, and thus, they demanded that everyone have access to masks. In the relevant literature, numerous studies proved that mask-wearing led to several problems, particularly dermatological problems, despite its positive effects (6,7,9,17,42). Due to putting on make-up, etc. as women paid more attention to the external appearance than men, women may have recommended the production of masks that would allow the skin to breathe and would not disturb them while they were wearing a mask.

## Conclusion

Masks become a part of daily life from now on even if the importance of mask-wearing increases further during pandemics. Therefore, it is important to identify individuals' approaches toward mask-wearing. In this study, a large amount of data on individuals' emotions, thoughts, and behaviors regarding the use of masks as well as their problems and recommendations concerning the use of masks during the COVID-19 pandemic was obtained. In light of the findings obtained in this study, it can be asserted that variables such as gender, education level, the status of previously having a COVID-19 infection, and employment status affected the use of masks. It is discerned that women were sensitive to the use of masks, and as the education level increased, participants held a more positive approach toward the use of masks. Taking note of society's mask-related knowledge, emotions, and behaviors, organizing training programs aimed at improving or developing them, and raising people's awareness about them are all important to public health. The results obtained in the current research shed light on problems experienced in the use of masks and presented recommendations for these problems. The emergence of other pandemics in the future seems likely. Individuals are expected to view mask-wearing as necessary, voluntarily wear a mask for protection even if mask-wearing is not obligatory, and exhibit the proper mask-wearing behaviors. Therefore, we think that it is important for policy-makers, health organizations, and health professionals to make use of the data from this research conducted on the topic. Hence, it can be possible to draw lessons from the ongoing COVID-19 pandemic, spread the use of masks in a similar situation likely to be experienced in the future, and solve the existing problems on the topic. This study, which uses the snowball method, is a cross-sectional study; it contains limitations in the representation of the universe.


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## Data Availability

The data that support the findings of this study are available from the corresponding author upon request.


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