# A Review of Wearing a Mask and How to Correctly Wear it in Shahroud City

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Received: 14 September 2021 Accepted: 25 October 2021

#### **Abstract**

Background: One of the most important issues since SARS-CoV-2 was identified was the growing information on how the virus was transmitted and how to protect against it. However, many key questions have not yet been fully answered. This study aimed to investigate the correct wearing of a mask in Shahroud city.

Methods: This study was a descriptive cross-sectional one conducted on 800 people in Shahroud city in a two-month interval (Aug. 22, 2020, to October 30, 2020). Data were collected using a checklist including demographic information. After being collected, the data were entered into SPSS18 and analyzed using descriptive statistics.

Results: The results indicated that out of 800 people taking part, 415 people (51.9%) were male and 385 ones (48.1%) were female. The mean participants' age was 61.78 16±16.09; most participants in the study were born in the year 1972-1995 with 385 ones (48%). Also, concerning masks, it was found that the use of masks and the correct use of them accounted for 528 cases (66%) and 377 cases (47.1%), respectively. The most used mask was a surgical mask with 343 cases (42.9). Concerning the non-use of a mask, 132 people (16.5%) cited choking as the most important reason for not wearing a mask. Also, 681 people (85.1%) and 557 ones (69.6%) had chosen not to participate at weddings and parties, respectively.

**Conclusions:** The results suggested that a greater percentage of participants in the study knew how to correctly wear a mask while not having a history of participating in ceremonies and parties, which is a very good issue.

**Keywords:** Mask, Correct wearing, Shahroud.

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Please cite this paper as: Garkaz O, Zirouhi A, Mohammadi F, Yavari G, Damghani Z. A review of wearing a mask and how to correctly wear it in Shahroud city. Int J Health Stud 2022;8(2):41-45

# Introduction

In late December 2019, several unexplained cases of pneumonia were reported in Wuhan, China. The Chinese government and health officials took sweeping action to contain the epidemic and began etiological researches. On January 12, 2020, the world health organization (WHO) temporarily named the new virus the novel Corona Virus-2019. On January 30, 2020, the WHO announced the novel 2019-Corona virus pandemic as a public health emergency of international concern (PHEIC). On February 11, 2020, the WHO officially named the disease caused by the novel 2019-Corona virus as the Corona Virus disease (COVID-19). On the same day, the International Coronavirus survey group (CSG) affiliated with the international classification Committee named

it severe acute respiratory syndrome (SARS-CoV-2)1,2. The mortality rate from Covid-19 was estimated to be at 2.84% based on the number of patients, while other studies reported this rate at 14%, 15%, and 3.4%.<sup>3-5</sup>

One of the key issues since SARS-CoV-2 was identified was the growing information on how the virus was transmitted and how to protect against it. However, many key questions have not yet been fully answered. As the pandemic spread quickly, public health officials had to advice the incomplete and changing information. Sometimes this resulted in changes to and even conflicting policies and risk information management. The guidelines on using a face mask in public populations have varied from place to place over time. Perhaps the global and national guidelines on using a face mask in gatherings have sometimes been conflicting more than other public and social health measures. In the early days of the pandemic, many experts expected SARS-CoV-2 to transmit similar to other respiratory viruses. When the issue of disease transmission was first described to people in the community, the data suggested that people may become infected through inhaling infected particles when they are getting in close contact with symptomatic patients or when they touch an infected surface. This is while, public health officials advised physical distancing, limited presence in public gatherings, coughing hygiene, hand washing, and avoiding touching the face touch.6-9

Epidemiological and laboratory studies have demonstrated that the virus spread most from patients at the onset of the disease and before the symptoms appear.10 Viral particles can remain infectious after suspending in the air and it was shown that infected people could play a part in transmitting the disease even when they were asymptomatic. 11 Some experts stated that the widespread use of face masks by populations in the Republic of Korea, Taiwan, and Hong Kong, among others, may have played a role in their success in containing the Covid-19 epidemic. In early April, US officials began to recommend the use of face masks to the public, with some legal authorities making it mandatory. 12 A recently published review demonstrated that the number of Covid-19 cases had risen more slowly in 15 states of the Colombian region where it had become mandatory to wear a face mask before April 1, 2020. In the meantime, authors estimate that these measures may have prevented a rise of 230,000 to 450,000 cases of Covid-19 up until May 22.13

A facial mask can reduce respiratory infections in a community, especially early in a season when a disease spreads. In a meta-analysis consisting of 172 observational studies, it was concluded a face mask can greatly contribute to reducing the incidence of Covid-19 and related viruses causing SARS and MERS (adjusted OR=0.15).14,15 Recently, researchers demonstrated in a mathematical model that even the masks not completely effective (masks that prevent only 20% of transmission) can reduce Covid-19, if continuously used by a high proportion of the population and in combination with other measures, including physical distancing.<sup>16</sup> The world health organization (WHO) is now suggesting a universal use of masks. During the Spanish flu in 1918, antimask groups had formed in cities across the United States, specifically in San Francisco.<sup>17</sup> Because many countries, including communities and states, are beginning to lift restrictions made to contain the Covid-19 transmission, with more and more people working outside every day, it is increasingly becoming important to use a face mask in public than ever before. A recently published study using mathematical modeling of disease transmission revealed that the extensive use of face masks and physical distancing were key steps to reopening economic activity without the need for re-closure. 18,19 On the other hand, one of the critical issues for people is how to correctly wear a mask at home and outside when facing an infected patient. This study aimed to examine how to correctly wear a mask in Shahroud city.

#### Materials and Methods

This study was a descriptive cross-sectional one performed on 800 people in Shahroud city from Aug. 22, 2020, to October 30, 2020, which was first registered under the Ethics Code of IR.SHMU.REC.1399.090 at the Shahroud university of medical sciences. Then, a series of inclusion and exclusion criteria were considered to collect data. The inclusion criteria were residency in Shahroud and the willingness to participate in the study. Data were gathered using a checklist including (gender, collection shift, collection time, year of birth, wearing a mask, correct wearing of the mask, type of mask, reasons for not wearing the mask, taking part in a wedding, or a party, using a mask in a gathering, percentage of using a mask, number of family members, number of family members believing in wearing a mask and number of participants in a

gathering or party) during eight consecutive random days in the morning and evening shifts across the main city centers. Also, when data were being collected, the people not having masks were given masks, and people who had masks were given educational brochures on wearing a mask and how to correctly wear a mask. According to the brochures, the correct way of using a mask has been based on the guidelines provided by the WHO<sup>20</sup> as follows: 1- Wear the mask to cover the entire face from under the chin up to the top of the nose and under the eyes 2-Avoid slits on your face caused by the side edges of the mask as much as possible 3- Hold firm the mask to your face, And how to apply the mask to the face (1- Do not place the mask under your nose, 2-Do not place the chin out of the mask, 3-Do not use wide-open masks whose edges remain afar of the face, 4-Do not place the mask only up to the tip of the nose, 5-Do not place the mask under the chin and neck, and 6- Place the mask up until the top of the nose). People were also reassured about the confidentiality of the information. Descriptive statistics were then analyzed.

#### Results

In this study, the number of 800 people participated the study, of which 415 people (51.9%) were male and 385 (48.1%) were female. The mean age of participants was 61.78±16.09. Most data were collected in the morning shift with 453 people (56.6%); this is while those born in 1972-1996 accounted for 385 people (48%) (Table 1). Concerning the issue of using a face mask and the correct use of it, 528 people (66%) used a face mask 377 ones (47.1%) used it correctly, with most of the masks used were surgical masks, i.e., 343 cases (42.9%). Concerning the reasons for not using a face mask, 132 people (16.5%) had cited choking and breathing difficulties as the most important reason (Table 2).

Also, 681 people (85.1%) and 557 people (69.6%) did not attend wedding ceremonies and parties. This is while the number of 130 people (16.3%) used a face mask when attending the ceremonies. In the meantime, 505 people (63.1%) accounted for using the face mask at 81-100%. The highest number of family members and the highest number of members believing in wearing a face mask were 287 (35.9%) and 218 (27.3%), respectively. Also, 560 people (70%) did not attend parties (Table 3).

Table1. Demographic ch	aracteristics of the	participants in	the study

Variable	Subgroup	Frequency	Percentage
Gender	Man	415	51.9
	Female	385	48.1
Callacting shifts	Morning	453	56.6
Collecting shifts	Evening	347	43.4
Collection time	6.5	104	13.1
	6.11	106	13.3
	6.16	109	13.6
	6.24	105	13.1
	7.3	101	12.6
	7.5	100	12.5
	7.16	95	11.9
	7.21	80	10
Varia of Direk	1300-1325	9	1.1
	1326-1350	199	24.9
Year of Birth	1351-1375	384	48
	1376 higher	208	26

Table 2. Characteristics of wearing a mask in the study participants

Variable	Subgroup	Frequency	Percentage
Use a mask	Yes	528	66
	No	272	34
Proper use of the mask	Yes	377	47.1
	No	162	20.3
	Unknown	261	32.6
Mask type	Surgical mask	343	42.9
	Fabric mask	132	16.5
	Handmade mask	10	1.3
	Mask N95	13	1.6
	Nano mask	29	3.6
	Do not use a mask	273	34.1
Reasons for not using a mask	Forgetting	54	6.8
	Cost	5	0.6
	Inaccessibility	4	0.5
	Not effective	65	8.1
	Other	132	16.5
	Unknown	540	67.5

Table 3. Characteristics of the history of participation in ceremonies in the participants in the study

Variable	Subgroup	Frequency	Percentage
Attand a wadding	Yes	119	14.9
Attend a wedding	No	681	85.1
Participate in gathering	Yes	243	30.4
	No	557	69.6
	Yes	130	16.3
Having a mask at the ceremony	No	28	3.5
,	Unknown	642	80.3
	0-20	135	16.9
	21-40	25	3.1
Percentage of mask coverage	41-60	57	7.1
	61-80	78	9.8
	81-100	505	63.1
	1	26	3.3
	2	119	14.9
	3	180	22.5
number of family members	4	287	35.9
	5	126	15.8
	6	62	7.8
	0	30	3.8
	1	67	8.4
North and a second and the ballons in the second	2	166	20.8
Number of members who believe in wearing a	3	191	23.9
mask	4	218	27.3
	5	92	11.5
	6	36	4.5
	0	560	70
N	1	145	18.1
Number of periods	2	46	5.8
	3	49	6.1

#### Discussion

Because there is no standard treatment or effective vaccine for the novel coronavirus, the best way in the current situation is to avoid infection and prevent its spread. One of the primary steps in this situation is not to travel to epidemic areas, not to eat infectious foodstuff, and not to come in contact with wild animals. People who have traveled to the epidemic area in the last 14 days have their body temperature measured for up to 14 days, and if disease symptoms are observed, they are recommended to use personal means of transportation to avoid public exposure. Also, health care workers should wear personal protective gear correctly and take it off correctly at the right time when transferring suspected or confirmed patients with the virus; in other words, health care workers should

completely wash the infected area with soap and water when being exposed to patients' blood or body fluids. Patients who have tested positive should be isolated (preferably an isolation room with negative pressure or otherwise a separate room with good ventilation); as well, if symptoms improve after 24 hours and the result of two consecutive tests turn out to be negative, the patient can leave the isolation room. Bodies infected with the Coronavirus should be cremated or buried deep in the ground.<sup>21</sup> Also, numerous studies have confirmed that protective masks have a determining role as one of the important factors in reducing the spread and transmission of the disease.<sup>22-24</sup>

Most of the participants in the study were comprised of women, which was consistent with the studies done by Park et al.<sup>25</sup> and Najimi et al.<sup>26</sup>, as this could be due to the greater responsibility women take for their health and that of family members. The findings indicated that sixty-six percent of the participants, i.e., most of them, knew how to correctly use a mask; this finding was consistent with studies by Tajor et al.<sup>27</sup>, Chen et al.<sup>28</sup>, and Wave et al.<sup>21</sup>. Some state this is likely because of awareness and information-raising by the mass media and health centers, however, more measures should be taken in this regard.

In this study, most of the masks used were surgical masks and the most important reason for not wearing them was choking or difficulty breathing. <sup>23,29,30</sup> The reason why surgical masks are mostly used is because of their availability and ease of wearing, which requires more support by manufacturing organizations. Those who fail to wear masks should be trained to wear masks to prevent the disease. However, in general, it is very critical to minimize the potential for disease transmission and to control the source of infection under conditions where the rate of disease transmission is very high. In the meantime, control measures should be prioritized. Because it is quite difficult and time-consuming to diagnose the exposed population, especially asymptomatic people, who can be carriers of the disease, it is suggested that using face masks can, under the current emergency, play an important role in reducing the spread of infection.31,32

Also, most of the members were found not have attended wedding ceremonies, and if did, they have worn masks, which was a very good and appropriate process; 14,28 Which again requires the efforts of the authorities to raise public awareness as well as increase the production of masks and disinfectants to make people available. Finally, the highest percentage mask covering between 81-100 among citizens who believe that adhere to this issue.

However, because in the current situation no vaccines are available for the virus, the patient must cover the mouth and nose with a soft piece of the handkerchief when sneezing and coughing to reduce the transmission of the disease to others. It is also recommended to wash hands with soap and water for at least 20 seconds, especially after the toilet, before eating, after sneezing and coughing. When there is no soap and water, disinfectants can be used. All people both sick and healthy are thus advised to wear a face mask. They should wear a face mask and wash their hands completely before wearing the mask, then the mask should be worn on the mouth and nose such that no slit is created between the face and the mask. In the meantime, while using the mask, one should avoid touching or handshaking. If the mask becomes wet and damp, it should be replaced. To remove the mask, it should be taken off from behind with no hand-contact being made to the front of the mask at all; the used mask should be put in a garbage can with hands washed again. One should use a paper towel or an automatic dryer to dry one's hands because the virus can survive on surfaces and its level of survive varies on different surfaces and various factors such as surface, temperature, or ambient humidity. If the surface is found to be contaminated, ordinary disinfectants can be used to kill the virus, and to prevent infection, healthy people should observe a distance of at least 1-2 meters away from a person with respiratory symptoms.33-36

One of the strengths of this study the present study was a strong case in that there was no such study in the country and the city concerning the important issue of wearing a mask being directly related to Covid-19 infection and that the volume of samples was high, contributing to the strength of the study. One of the weaknesses of this study was the inadequate cooperation on peoples' part; the researchers provided the necessary explanations about the project as much as possible, which resulted in increased cooperation. It is also recommended that these studies be repeated to examine its relationship with this disease and the patients with Covid-19 in the city. Because of a lack of standard treatment and effective vaccines, the best strategy to do is to avoid infection and prevent falling ill. One of the necessary measures to prevent it is to follow health protocols such as wearing a mask and disinfecting hands. In the meantime, isolation for 14 days is required if infected. The medical staff needs to use personal protective gear. It is also necessary that masks and health necessities be largely available at a very low price.

## Acknowledgement

The present study was supported by Shahroud university of medical sciences. We hereby acknowledge the research deputy for grant No 9974.

## **Conflict of Interest**

The authors declare that they have no conflict of interest.

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