



# **Potential Use of Masks and their Harms in the Context of the Covid-19 Pandemic**

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## **Abstract**

The aim of the review is to illustrate the potential use of masks and their harms in the context of the Covid-19, from the period 15<sup>th</sup> March till 15<sup>th</sup> June, 2020. Topics related to the title of this review were collected by searching through various databases including Google Search Engine, Pubmed, Researchgate, and Google Scholar to write the review well. It indicated from this review that healthy people should wear masks in communication and in public only, not wear them when exercising and not wearing them for people with respiratory diseases such as asthma, due to a lack of respiratory secretions, which may negatively affect the health of individuals. It was concluded that the medical mask is the best among other masks and shields when used to avoid contracting the covid-19 virus and since the medical mask is useful but its use for long and unnecessary periods causes some health harms, the most important of which are headaches, skin lesions on the face, difficulty in oral communication with others.

## **Introduction**

Using masks is one requirement for the prevention and control package that supports reducing the spread of viral respiratory infections, including COVID-19, these masks are involved either to protect for healthy people (worn for self-protection in contact with an infected individual) or to control the source of infection (worn by an infected individual to prevent transmission), other procedures should also be maintained at the personal and societal level to suppress the transmission of respiratory viruses. If the mask is used or not, necessary for everyone to meet other prevention requirements such as hand washing, social and physical distancing (1). Other actions should also be adopted at the personal and societal

level to constrain the spread of respiratory viruses, if the masks are used or not, important to take care of hand hygiene, social distancing and other preventive measures (1).

Current information points out the direction of transmission of the (Covid-19) virus from one person to another via the droplet route, so, anyone within two meters (in close contact) of a person infected with the virus is at risk of exposure to respiratory droplets that may carry the virus (2). Wearing a mask can be one of the preventive actions that may help reduce the spread of the respiratory infections, realize that a mask is not acceptable to keep a significant protection (2).

Putting on a shield on the face appears not mean that one can avoid doing physical distancing, escape touching the eyes, or no need to disinfect hands. The mask is effective when applied with frequent hand washing with soap and water or alcohol-based hand sanitizer and reinforces a safe distance from others (2). Masks help prevent the spread of the Covid-19 virus, and some communities have a long history of wearing a muzzle to reduce infection. But, other communities will remember 2020 as the first year they wear a muzzle (2).

If we've never worn a mask before, you'll have many queries. To help us make the perfectest decisions for our families, we've collected. The latest information released by experts to the public about masks and COVID-19 is how to wear them and pay attention to them to prevent contamination until they are disposed of, and how to develop the proposals on how to make masks necessary to the family, including children (3). UNICEF and WHO called for children up to the age of five to be masked based on the world's child safety rule, and since these vary in their developmental stages by different age stages, the instructions for wearing the mask for children may differ according to each country's health and preventive system (2, 3). The WHO recommends masks as part of a comprehensive package of efforts to prevent, control and limit the spread of infection with the Coronavirus - SARS-2, which causes Covid-19 but a mask alone, even when used correctly, is not enough to offer effective protection against infection or fight its source. Other steps to prevent and control infection include hand hygiene, physical distancing of at least one meter, avoiding touching the face, respiratory etiquette, adequate indoor ventilation, testing, contact tracing, and quarantine (4).

## **Objective**

To illustrate the potential use of masks and their harms in the context of the 19th Common Pandemic.

## **Methods**

Writing this the review to illustrate the potential use of masks their harms, from the period 15th March to 15th June, 2020. Topics related to the title of this review were collected by searching through various databases, including Google Search Engine, Pubmed, ResearchGate, and Google Scholar to write the review well. These selected materials were written in English and in Arabic using different keywords such as general use of mask, face shield, medical mask, mask types, covid-19 mask.....Etc., the article was divided into key topics such as (introduction, aim of article, research methods, review of article details and conclusions) and other sub-topics.

## **Review related details**

### **Indoor and outdoor public use of the mask**

Decision makers should focus on a risk-based approach when dealing with the mask (4), for example, when identifying or suspecting the transmission of SARS-Co virus in local residential areas, WHO advises that a non-medical mask be placed on in the interior such as shared markets or workplaces, but in outdoor places where there is no significant space for physical distance, a distance must be provided between one person and another so that no less distance from 1 meter (4).

### **Children's optimal usage of masks**

Children up to five years of age should not wear masks to combat the source of infection, while the children between 6 and 11 years of age, a threatened-based approach should be implemented when deciding to wear a mask (4). Factors to consider in this approach include:

1. The intensity of transmission of SARS-CoV-2.
2. The child's ability to keep use of masks.
3. The availability of adult supervision.
4. The local social and cultural environment, and specific settings such as homes where elderly relatives are present or schools
5. Regarding the children and adolescents 12 years of age or older should observe the principles that apply to adults (4).

## **Manufacture of non-medical masks**

It is advocated to put on home-made masks of three layers (depending on the type of fabric used), as each one of them plays a role.

1. The inner layer is produced with water-absorbent materials.
2. The outer layer is a hydrophobic part.
3. Filtering what is inside from outside (4).

## **Potential use of masks in healthcare contexts**

The WHO, Disease Control Commodity Groups for COVID-19 ensures that health workers wear type 2 mask (moderate barrier) or better medical masks, type 2 mask keep a physical barrier to liquids and particulate matter, and have an air filtration efficiency of 98% of bacteria or higher (5), compared to a type 1 mask (5), where the air filtration efficiency of bacteria is 95% or more and involves less resistance to fluids (6). If medical masks of type 2 or higher are out of stock, health workers must use the type 1 mask as a replacement, other options, such as face shields or cloth masks, should be evaluated, facial shields, including masks, are devised to keep protection against passaging pathogenic biological fluids, respiratory secretions, harmful chemical agents, and fragments (7, 8) and in protection against transmission of SARS-CoV-2 virus by respiratory drops. All health workers have been directed to wear facial shields as personal protective equipment, to care for the eyes, as well as to wear a medical mask or other respiratory equipment if needed (9, 10) although it provides partial facial protection from the entry of drops Oral respiratory system (7,11).

Cloth face masks are not included in personal protective equipment because they do not sufficiently protect the respiratory system against pathogens, and this type of muzzle is not subject to mandatory testing or common standards and so is not a proper alternative to medical masks because it does not provide adequate protection for health workers, as one study assessed cloth respirators in the health care facility and found that health workers using two-level cotton respirators (a type of respiratory cloth) They are further acceptable to develop the influenza-like disease. Of those wearing medical masks (12); however, face shields alone or cloth respirators can be used as a last resort (13), with the mask covering both sides of the face and under the chin, as with other personal protective equipment, if cloth respirators be produced for health-care environments, local authorities must evaluate the product against the specific minimum performance standards and technical specifications required. The main purpose of using the mask against various viruses is to control the source

of infection (protecting infected people from transmitting the virus to others or to protect (protecting healthy people wearing masks from infection (13).

### **Potential use of mask among public population**

People going through from the illness should guide, advice, aids, teaching aids, tips (15), and if a medical mask is not available for individuals approved or suspected of having Covid-19 disease, patients must wear a cloth mask that meets the specifications described in the annex in this document, as a measure to combat the source of infection until a medical mask is available. Using a non-medical mask can reduce respiratory droplets from the wearer on asymptomatic individuals who show positive for the SARS coronavirus (16, 17).

### **Potential benefits of using masks for healthy people**

1. **General advantage:** used to reduce or prevent exposure to infectious respiratory droplets and their access to them through coughing and sneezing by an infected person or contact (18).
2. **Specific advantages:**
  - Increased acceptance of mask wearing among the healthy, either to avoid infection from others or to protect individuals caring for COVID-19 patients in non-clinical environments (19).
  - Enable them to play the role of preventing infection and contribute to stopping the spread of the virus (19).
  - Wearing a mask may improve their non-mask-related behaviors to prevent transmission, such as cleaning hands and not touching the eyes, nose and mouth (20,21).
  - The mask used by them contributes to preventing the transmission of other respiratory diseases, such as pulmonary tuberculosis and influenza, hiding the burden of these diseases during the pandemic (22).

### **Potential mask use during physical activity**

There are insufficient investigations on the benefits and harms of wearing medical masks, respirators, and non-medical masks during physical activity, and many studies have revealed significant negative effects of using masks in the COVID-19 epidemic and in a study that followed various physiological parameters referred to cardio-pulmonary functions, where pulmonary complications were looked at during light to moderate exercise, among healthy

individuals and respiratory patients such as asthma (23, 24) because wearing masks during muscle effort increases asthma and chronic obstructive pulmonary disease, especially when the brainwashing of physical exertion is moderate to severe (25).

Changes in facial temperature increased humidity, and perceptions of shortness of breathing have also been reported in some studies on the use of masks during exercise (23, 26), with a recent review revealing little evidence of the negative effects of using masks during exercise. However, increased concerns among heart and acute vascular patients about wearing masks (27) were showed, so who points out masks should not be worn during long-intensity physical activity, because they are not It may weaken a person's ability to breathe (28).

### **Potential damage to healthy people when using masks**

1. Headaches and/or shortness of breath depend on the type of mask used (29).
2. The appearance of certain skin lesions on the face, for example neurodermatitis, or exacerbation of acne, especially when applied and for long hours (29).
3. The difficulty of wearing masks from communicating with people, especially people who are deaf, hard to hear or impaired (30, 31).
4. The mask is uncomfortable.
5. False sense of security, which limits adherence to other preventive measures such as physical alienation, cleanliness and hand washing(31).
6. Poor compliance with the wearing of masks, among young children (32, 33).
7. Noticeable problems in garbage management; proper disposal, which increases their concentration in public places and environmental risks (34).Implementation of considerations of wearing masks.

### **Face shields for the public**

At present, face shields provide a level of eye protection only and should not be considered a protector of respiratory devices to avoid respiratory drops and/or conflicting the source of infection, as these shields have been assessed according to laboratory testing standards for facial shields as protecting the eyes from chemical spraying (35) and in the lack's context or difficulty of wearing non-medical respirators (e.g., in populations with cognitive, respiratory or auditory impairment), they can be alternative facial shields (35).

## **Role of decision makers to implementing general mask-wearing policies**

The role of decision makers on the policies of wearing masks is focused on the following points.

1. Communicate to people the purpose of wearing masks, including when, where, how, and what kind of mask to wear, with a commitment to hand hygiene, physical distancing, breathing manners, suitable internal ventilation, and other measures that are significant and reinforce each other.
2. Look at the feasibility of using the mask and not only to satisfy the person for himself or others and to abide by the fundamental measures to clean, storage, trash management, sustainability and social and cognitive acceptance.
3. Continue and follow up on everything related to data and scientific evidence about the effectiveness of the use of masks of different types in the non-health care environment.
4. Assess the impact of mask use (positive, neutral, or negative) among the general population (including the behavioral and social sciences) through good quality research (23, 24).

## **Mask-wearing guidance to provide care for COVID-19 patients at home**

WHO always provides guidance on how to care for patients at home when care cannot be achieved in a health facility or other residential care facility, people who are sick and suspected must wear a medical mask as much as possible, especially when there are no other alternatives to staying in the same room with others and the shield must be changed at least once a day (35).

## **Mask alternatives for people who cannot afford to wear a medical mask**

People who cannot afford to wear a medical mask must adhere to respiratory hygiene measures (i.e. cover the mouth and nose when coughing or sneezing with a handkerchief that can be disposed of after safe use, or by bending the elbow, then cleaning hands, while those who share a living space with individuals suspected of having COVID-19 or develop mild symptoms have to wear a medical mask when they are in the same room with them (35).

## Possible harms due to mask use

1. Headaches and/or shortness of breath depends on the type of mask used (29).
2. The appearance of certain skin lesions on the face, for example neurodermatitis, or exacerbation of acne, especially when applied frequently and for long hours (29).
3. The difficulty of wearing masks from communicating with people clearly, especially people who are deaf, hard to hear or visually impaired (30, 31)
4. The mask is generally uncomfortable
5. False sense of security, which in turn limits adherence to other preventive measures such as physical alienation, cleanliness and hand washing (31).
6. Poor compliance with the wearing of masks, particularly among young children (32, 33).
7. Noticeable problems in garbage management; proper disposal, which increases their concentration in public places and environmental risks (33).

## Conclusion

We concluded from this review that the medical mask is the best among other masks and shields when used to avoid contracting the covid-19 virus and since the medical mask is useful but its use for long and unnecessary periods causes some health harms, the most important of which are headaches, skin lesions on the face, difficulty in oral communication with others.

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