



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH  
An official Publication of Human Journals

ISSN 2349-7203



Human Journals

**Review Article**


August 2023 Vol.:28, Issue:1

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## Psychology of Continued Mask Wearing



IJPPR  
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH  
An official Publication of Human Journals



ISSN 2349-7203

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**Submitted:** 25 July 2023  
**Accepted:** 18 August 2023  
**Published:** 30 August 2023

**Keywords:** Mask wearing, COVID-19 prevention, psychology, peer pressure, interpersonal anxiety

### ABSTRACT

Masks are widely used as a protective measure against bacteria and viruses. To prevent the spread of flu and cold viruses, many Japanese people wear masks in winter despite not being sick. Starting in March 2023, mask-wearing in Japan for COVID-19 prevention is no longer compulsory. Nevertheless, some people continue to wear masks to this day. Investigating the factors that determine the behavior of mask-wearing may enlighten and support the implementation of measures against infectious diseases in groups. Therefore, this study evaluated the factors that influence individuals' mask-wearing or non-mask wearing and assessed how they wear masks.



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## INTRODUCTION

The new coronavirus disease (COVID-19) spread worldwide toward the end of 2019 and remains a current health concern. The number of COVID-19 cases is still fluctuating in many parts of the world, including Japan, and the end of the epidemic cannot be ascertained. Although the development of therapeutic drugs and trials of treatment methods are progressing, the deterioration of patients in many cases cannot always be avoided, and deaths continue to occur. To date, Japan has implemented COVID-19-related measures that are similar to those for influenza, which is also caused by a virus. Some of these measures include wearing masks in public facilities, such as libraries and government offices, and indoors, such as restaurants and shops; installing desk partitions; disinfecting and measuring body temperature in entry and exit points of facilities and establishments; and hand washing and gargling when returning home or moving indoors. These measures are known to prevent the three densities (sealed, dense, close) and stop the virus from entering the body and attaching to the body surface).

Since March 2023, these measures have been greatly relaxed in Japan, and in principle, wearing masks and installing desk partitions are no longer mandatory<sup>1)</sup>. Moreover, the installation of disinfecting stations is now optional, with some stores removing them completely or reducing their number. Opportunities to wash one's hands, particularly to prevent COVID-19, have thus decreased. Masks are widely regarded as protective measures against persistent bacterial and viral infections. To prevent the spread of cold and flu viruses, especially in winter, many Japanese people wear masks despite not being sick<sup>2)</sup>. As mentioned above, wearing masks for purposes such as COVID-19 prevention is no longer mandatory; nevertheless, some people continue to wear masks<sup>3)</sup>. Investigating the factors that determine such behavior may enlighten and support the implementation of measures against infectious diseases in groups. In this study, we investigated the factors that influence individuals' mask-wearing and non-mask wearing and the ways in which they wear masks.

### *Purpose of wearing masks*

Mask-wearing in relation to COVID-19 was originally intended to prevent the entry of the virus through the mouth and nose. Droplets that are expelled while one is sneezing or speaking loudly can travel for several meters. If these droplets are expelled by a person infected with COVID-19, they are likely to contain the virus. Masks are designed to stop

these respiratory droplets from being expelled by people infected with COVID-19 and from entering the respiratory passages of those not infected with the virus. Specifically, masks limit the dispersion of droplets and thus help prevent the spread of the virus. However, whether masks are effective cannot be directly established unless an infected person is nearby. Wearing masks is recommended or even compulsory when coming into contact with an unspecified number of people (e.g., commuting to work or school or while shopping) because whether one is positive or negative for the virus is difficult to determine based on physical appearance alone. However, masks do not completely prevent the scattering of respiratory droplets. Specifically, masks are mainly worn as protection against pollen, and their pore size is larger than that of viruses<sup>5</sup>. Therefore, 100% protection is not possible<sup>5</sup>. Depending on how a mask is worn, the virus may leak from both the mouth and nose. As the nose and mouth are connected inside the body, even if such droplets containing the virus reach the nose instead of the mouth, the virus is likely to enter the body. Therefore, when wearing a mask, the nose and mouth should be well-covered, and there should be no gaps at the edge of the mask that allow air to pass through. During the peak of the COVID-19 pandemic, especially in Japan, masks were frequently out of stock, and obtaining them was difficult. However, reusing worn-out masks repeatedly is not recommended because viruses and other substances are likely to be attached to used masks, and coming into contact with such masks increases the risk of contracting the virus. Hence, mask-wearing required a considerable supply of masks which entailed a large amount of money<sup>1</sup>).

Meanwhile, masks were sometimes required only on a few occasions. In previous reports, the World Health Organization recommended maintaining a distance of at least 1 m from people coughing or sneezing to prevent transmission<sup>6</sup>. People who were sick due to fever, cough, or symptoms of COVID-19 were encouraged to wear masks. Doing so would help prevent the spread of the virus. Healthy people were asked to wear masks only if they were caring for someone suspected of being infected with COVID-19 or if they had symptoms, such as coughing or sneezing. Starting in March 2023, mask-wearing in Japan is no longer mandatory. Hence, persons positive and negative for COVID-19 should wear masks only when they are in close proximity to each other. New research from the Massachusetts Institute of Technology suggests that droplets in coughs and sneezes can travel farther than originally thought, and they plan to reconsider the distances at which masks are needed<sup>6</sup>. According to a survey in Japan, droplets could travel approximately 1.3 m in a normal conversation. Meanwhile, droplets from sneezing are known to travel more than 5 m. Reports

have shown that masks do not completely prevent viruses from entering the body<sup>5</sup>). Although masks cannot be described as completely ineffective, they cannot be the sole measure used to protect against disease.

### ***Subjective reasons for wearing masks***

An overview of the reasons for mask-wearing is presented in Table 1. These reasons and their importance determine whether one wears a mask. If people do not agree with the reasons, they will choose not to wear masks. According to previous research (2020), people wear masks to prevent themselves and others from being infected and to align themselves with others who wear masks<sup>7</sup>). With the passage of time since the COVID-19 outbreak, self-infection prevention has encouraged people to wear masks more. According to research results for 2021, the frequency of mask-wearing was related to social anxiety (anxiety about being seen by others and anxiety about interpersonal interaction), trait anxiety (anxiety induced by factors other than interpersonal relationships, difficulty in living, and worry about handling common items), and awareness of vulnerability to infection (susceptibility to infections and aversion to infection)<sup>8</sup>). For these reasons, mask-wearing cannot necessarily be considered a countermeasure against infection. However, these relationships are believed to have changed dynamically according to the severity of the COVID-19 epidemic (i.e., the number of infected people) and seasonal fluctuations. According to a survey of university students in 2022, the motives for wearing masks include hygiene factors (e.g., infection prevention measures), the desire to conform to others by following social norms, and the sense of security gained by hiding one's face<sup>9</sup>). People's mask-wearing is strongly linked to their tendency to see and conform to other wearers while only a weak link has been observed with the original purpose of preventing infection<sup>5</sup>).

In our opinion, mask-wearing is mainly for preventing infection (suppressing the uptake of the virus from people who test positive), but such purpose is not the only reason. For example, if an individual is surrounded by people wearing masks, he or she may be positively influenced and think of wearing a mask even without much knowledge about COVID-19; on the contrary, he or she may be negatively influenced and feel pressured to wear a mask. Additionally, the fact that women do not wear makeup and do not want their faces and mouths to be seen during dental treatment motivates them to take the lead in wearing masks. Even if they do not know much about COVID-19, some choose to wear masks for the time being because masks create a sense of security.

### *Reasons for not wearing masks properly*

Since March 2023, wearing masks has become optional rather than obligatory in Japan, and the percentage of people wearing masks has changed. According to the results of a questionnaire survey, 76.3% of the respondents answered that they always wore masks when going out, but that percentage decreased to 60.4% in the survey conducted at the beginning of April of the same year. In the same survey, when asked whether they would continue wearing masks, 66.2% agreed<sup>3)</sup>. This result could be attributed to the absence of a proper treatment method for COVID-19. Therefore, we believe that we have no choice but to rely on wearing masks even if their preventive effects remain unclear.

Masks are properly worn by making sure that they cover the nose and mouth such that breathing out from the sides is difficult. However, in some cases, proper mask-wearing is not adhered to. Some people only cover the mouth or let the mask hang over the chin without covering the mouth and nose while others wear the mask only on one ear. Such methods of mask-wearing are thought to be due to doubts about the effectiveness of masks and the fact that people have no choice but to wear masks and thus show resistance. They may also be unaware that covering only the mouth is not effective in suppressing viral uptake.

Meanwhile, reports have shown that masks may cause other diseases<sup>1)</sup>. For example, in summer, heat easily accumulates inside the mask, thus increasing the risk of heat stroke<sup>4)</sup>. Even if the risk of contracting COVID-19 is high, children often do not wear masks to prevent heat stroke. Masks also inhibit oxygen uptake during breathing. Consequently, blood flow increases excessively, leading to hypertension<sup>4)</sup>.

### **CONCLUSION**

In this study, we identified the subjective factors that determine mask-wearing. In Japan, mask-wearing for COVID-19 prevention is no longer compulsory; therefore, mask-wearing at this point will be determined by individual judgments and preferences. From our subjective point of view, we believe that Japanese people have a wealth of information and that how they value that information will determine their mask-wearing. Specifically, given the availability of positive and negative information about wearing masks, we believe that how such information is valued and interpreted can vary according to individual preferences.

As indicated in the results of this review, wearing masks will continue to be fundamentally aimed at preventing the spread of COVID-19. Given the related financial and physical burdens (e.g., purchasing masks and contracting other diseases), we believe that the conditions for mask-wearing will change psychologically<sup>7)</sup>. The possibility of people close to us becoming infected, news reports on changes in the number of new infections, and progress in treatment methods will have a large impact. However, some studies have reported that mask-wearing may not be affected by these factors<sup>8)</sup>. Although mask wearing has several advantages, only a small number of people appear to want to continue wearing masks. Some of the reasons include wanting to hide one's face and not wanting to communicate with others<sup>9)</sup>. Traditionally, Japanese people wear masks during winter to prevent influenza and colds. However, given that COVID-19 infects people regardless of the season, people who want to wear masks think that such a factor is reason enough to continue wearing masks. COVID-19 is not completely over yet. If people think about it scientifically, we believe that they should decide to wear masks after properly understanding the effects.

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**Table 1 Reasons for wearing masks due to the COVID-19 pandemic**

Possible reason	Supplementary reason	Prior research showing evidence (reference number)/Reason for author's opinion
Self-infection prevention	Masks prevent exhaled breath and generate droplets from entering the mouth and nose.	7),8),9), Our thought
Overestimation of self-infection prevention	Wear a mask even though the press may say it is not as effective.	5)
Infection prevention for others	One does not know if a person is positive for the virus, so don't let one's exhaled breath or droplets enter other people's bodies.	5),7),8),9)
Attunement to others	Seeing others (even a small number of people) wearing masks makes them think that they should also wear masks (positive influence from others).	5),7)
Conform to social norms	Even people who have never seen a person wearing a mask decide that it is better to do so (common sense judgment).	9), Our thought
Conformity pressure	As people around an individual are wearing masks, one feels like doing so (it is not that he is being warned; negative influence from others).	Our thought
Hide face	Cover your face with a mask so one does not have to wear makeup (e.g. when walking or shopping).	9), Our thought
Alleviate interpersonal anxiety	Masks relieve the anxiety of being seen by others and having to interact with others.	8)
Relief of trait anxiety	Consciousness includes not knowing what the disease is and anxiety about the future.	5),8), Our thought
Take whatever measures you can	It cannot be said that the current medical system and treatment methods have been established, so one will do whatever one can.	5), Our thought
Mask does not make it difficult to breathe	No or little difficulty in breathing or discomfort when wearing a mask.	Our thought
Wear a mask anyway even without much information	It is worn for one's own thoughts and feelings (sometimes for profit) or without thinking regardless of the nature of others or illness.	Our thought

This table is a compilation of the contents of references 5), 7), 8), and 9) and the author's thoughts (including the content of 1)).