

DOI: <http://dx.doi.org/10.33846/hn60904>  
<http://heanoti.com/index.php/hn>



## RESEARCH ARTICLE

URL of this article: <http://heanoti.com/index.php/hn/article/view/hn60904>

# Wearing Face Mask and Occurrence of Dry Mouth

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## ABSTRACT

In Covid-19 pandemic era, wearing of face mask has become a necessity, not only in hospitals but also in society. Although wearing face mask can reduce the risk of transmitting SARS-CoV-2 infection, it has certain detrimental effects. One of the side effects to pay attention to is the wearer's oral health, namely mask mouth or xerostomia or what is commonly referred to as dry mouth syndrome. This study aim was to determine the effect of wearing face masks on the occurrence of dry mouth. This cross sectional study was conducted in February 2021. Sample consisted of 82 people aged 18-45 years in Kemuning Subdistrict, Sekip Jaya, Palembang, South Sumatera who were taken by simple random sampling. Data was obtained from filling out online questionnaires and analyzed using the Chi-square test with the significance interval 95%. Respondents who wear cloth mask, medical mask, and N95 mask and experiencing dry mouth as many as 95.4%, 80%, and 80%, respectively. Dry mouth were occur on 50% respondents who wear face mask <1 hour, 100% respondents who wear face mask for 1-2 hours and 2-4 hours, 55.6% respondents who wear face mask for 5-6 hours and 83.9% respondents who wear face mask >6 hours. There was no significant association between type of face mask with occurrence of dry mouth ( $p>0.05$ ). Otherwise, there was significant association between duration wearing face mask with occurrence of dry mouth ( $p<0.05$ ). It can be concluded that wearing face mask can promote the dry mouth.

**Keywords:** SARS-CoV-2; mask; dry mouth

## INTRODUCTION

Corona virus disease (Covid-19) is a disease caused by the SARS-CoV2 virus that first appeared in Wuhan Province in China in late December 2019 and very quickly spread throughout the world. The number of Covid-19 patients at the beginning of December 2020 worldwide was 68,542,146 people, in Indonesia as many as 586,842 people infected with Covid-19,<sup>(1)</sup> in South Sumatra 9,919 people, and in Palembang as many as 4405 people.<sup>(2)</sup> Covid-19 is transmitted from an infected person to another person through droplets, either directly or through contaminated objects. The clinical symptoms of Covid-19 vary widely, ranging from asymptomatic to respiratory failure that often leads to death.<sup>(3)</sup>

The use of masks is part of a comprehensive series of preventive and control measures that can limit the spread of certain respiratory virus diseases, including Covid-19.<sup>(4)</sup> Masks can be used either to protect a healthy person (used to protect yourself when in contact with an infected person) or to control the source (used by an infected person to prevent further transmission).<sup>(5)</sup>

The wearing of masks has become a necessity, not only in hospitals but also in the community. Although the use of masks can reduce the risk of transmission of SARS-CoV-2 infection, it turns out to have certain adverse effects.<sup>(6)</sup> A recently noticed side effect is on the oral health of the wearer. A new term has been coined for this phenomenon of "mask mouth" with symptoms such as caries, gingivitis, halitosis, candidiasis, and angular cheilitis.<sup>(7)</sup>

Mask mouth or xerostomia or commonly referred to as dry mouth syndrome is a result of a decrease or absence of saliva flow, causing the mucosa to become dry.<sup>(8)</sup> Patients with xerostomia reported symptoms as much as 42.1% in the form of discomfort in the oral cavity, as much as 46.7% difficulty in swallowing and impaired taste, burning in the oral cavity, as much as 55.1% of lips cracked and peeled.<sup>(9)</sup>

## METHODS

This cross-sectional study conducted in February 2021 in RW 009 Kemuning Subdistrict, Sekip Jaya, Palembang. Kemuning district was chosen randomly from 18 districts in the Palembang city. Sample consisted of 82 people aged 18-45 years taken by simple random sampling. Inclusion criteria of the respondents were wearing mask in consecutive 5 days, do not have abnormalities that cause dry mouth, and not taking drugs that cause dry mouth. The data is obtained from filling out online questionnaires disseminated through Whatsapp™. Respondents can fill out their own questionnaires or be assisted by others. The data analysis using Chi-square test with 95% confidence interval.<sup>(10)</sup>

Ethical approval for this study was obtained from Health Polytechnic of Palembang Ethics Committee with approval number: 646/ KEPK/ Adm2/ I/ 2021

## RESULTS

Table 1 shows that 95.4% respondents who wear cloth mask has an experiencing of dry mouth, otherwise only 80% respondents who wear medical and N95 mask has an experience of dry mouth. Chi-square test obtained p value=0.17 ( $p>0.05$ ), indicates that there is no significant association type of face mask on the occurrence of dry mouth.

Table 1. Association between type of face mask and the occurrence of dry mouth

Type of face mask	Dry mouth						p value
	Yes		No		Total		
	f	%	f	%	n	%	
Cloth mask	21	95.4	1	4.5	22	100	0.174
Medical mask	44	80	11	20	55	100	
N95 mask	4	80	1	20	5	100	
Total	69	84	13	16	82	100	

Table 2. Association between duration wearing face mask and the occurrence of dry mouth

Duration wearing face mask	Dry mouth						p value
	Yes		No		Total		
	f	%	f	%	n	%	
<1 hour	4	50	4	50	8	100	0.000
1-2 hours	19	100	0	0	19	100	
2-4 hours	15	100	0	0	15	100	
5-6 hours	5	55.6	4	44.4	9	100	
>6 hours	26	83.9	5	16.1	31	100	
Total	69	84.1	13	15.9	82	100	

Table 2 show that dry mouth were occur on 50% respondents who wear face mask <1 hour, 100% respondents who wear face mask for 1-2 hours and 2-4 hours, 55.6% respondents who wear face mask for 5-6 hours and 83.9% respondents who wear face mask >6 hours. There was significant association duration wearing face mask with occurrence of dry mouth ( $p<0.05$ ). It can be concluded that there is a long-standing influence of the use of masks on the occurrence of dry mouth. Wearing face mask can promote the dry mouth.

## DISCUSSION

Wearing face mask is part of a comprehensive series of preventive and control measures that can limit the spread of certain respiratory virus diseases, including Covid-19.<sup>(11)</sup> One of the side effects that has recently been noticed is on the oral health of the wearer. Mask mouth or xerostomia or commonly referred to as dry mouth syndrome is a result of a decrease or absence of saliva flow, causing the mucosa to become dry. Xerostomia or commonly referred to as dry mouth syndrome is a result of a decrease or absence of saliva production, causing the mucosa to become dry.<sup>(12)</sup> Patients with xerostomia often feel symptoms arising in the form of discomfort in the oral cavity, difficulty in swallowing, taste disorders, burning sensation in the oral cavity, chapped lips and chipped.<sup>(13)</sup> This study find out that wearing face mask can influence of the the occurrence of dry mouth, but type of face mask has no effect on the occurrence of dry mouth. Wearing a mask can cause dry mouth, this is because when wearing a mask a person tends to breathe through the mouth, instead of through the nose and drink less. They also tend to breathe faster. Breathing through the mouth can cause dryness of the mouth and create bad breath. When the mouth is dry, saliva isn't working to wash away food particles and moisten oral tissues.<sup>(14)</sup>

Purushothaman et al. study showed that the continuous use of masks can cause a variety of nasal discomfort and complaints related to the skin of the face and oral cavity due to prolonged use, it was found that 35.30% experienced discomfort in the oral cavity i.e. dry mouth when wearing the mask for a long period of time.<sup>(15)</sup>

In carrying out this study, researchers realized many limitations that indirectly affect the results of the study, namely time limitations in this study, so that the number of samples studied is only limited. Therefore, it is appropriate that other researchers conduct further research on a wider range of samples or subjects and are advised to use random sampling techniques in sampling research to be more effective. This is not a reason to stop wearing a mask. Masks on their own do not cause dry mouth. Failing to stay hydrated and breathing through your mouth can cause dryness even without a mask.

### CONCLUSION

Wearing face mask can influence of the the occurrence of dry mouth, but type of face mask has no effect on the occurrence of dry mouth. To avoid the occurrence of dry mouth in mask users are advised to drink more water to prevent the occurrence of dry mouth, stimulating saliva production carried out by the movement of chewing candy, but should be sugar-free and non-acidic. Products containing xylitol can be advised, a diet of foods rich in moisture and not hot or spicy foods.<sup>(16)</sup>

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