

ASSESSMENT OF AWARENESS, ATTITUDE, AND PRACTICE OF USE OF FACEMASK AMONG THE GENERAL POPULATION DURING COVID-19 PANDEMIC: A QUESTIONNAIRE STUDY.

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Abstract

Introduction: Masks play a role in the protection of health from acquiring respiratory infections including COVID-19. But there is a paucity of evidence on the effectiveness of facemask use during COVID-19. The purpose of the study was to assess the awareness, attitude and practices of the use of facemask among the general population during the COVID-19 pandemic.

Materials and Methods: A questionnaire study was conducted among the general population to assess awareness, attitude and practices of use of facemask. The structured, self-administered, close-ended questionnaire was designed to collect the data which consist of two parts and comprised 25 questions related to knowledge, attitude and practices of use of facemask. The reliability and validity of the instrument (Cronbach alpha- 0.681). Informed consent was also taken from all the participants. Statistical analysis was done using descriptive statistics.

Results: In this study, there were a total of 350 participants between 18-78 years of age. Only 20% of the participants know that the outside surface of the mask is not to be touched and 28.3% preferred wearing an N95 mask over others. More than half of participants 52% strongly agreed to wear a face mask, while 39.1% of the people often perform hand hygiene before wearing a face mask but not always.

Conclusion: The study concluded that the overall knowledge of study participants was average while attitude and practices of use of facemask were good in study participants.

Keywords: Attitude, Awareness, COVID-19, Facemask, SARS-CoV-2, Pandemic.

Introduction:

The novel coronavirus disease (COVID-19) has already affected over 6.9 million people, claiming more than 400,000 lives in over 200 nations all over the world.¹ The world got its first case of novel Coronavirus also known as COVID-19 on 30th December 2019 in Wuhan, Huawei province, China. In developing countries like India, the first case was detected on 30th January 2020 which gave rise to nationwide havoc. World Health Organization (WHO) declared this infection as a public health emergency of international concern.² COVID-19 is the first non-influenza pandemic declared by WHO.³ COVID-19 is a respiratory

illness caused by SARS-CoV-2 (Severe Acute Respiratory Syndrome COVID-2), which spreads primarily through respiratory droplets produced by an infected person (cough or sneezes) or by touching contaminated surfaces or objects and thereby touching their mouth, nose and eyes that are the direct or indirect route of spread.⁴ It is indisputable that infected patients can transfer COVID-19 to other people after a few days before manifesting clinical symptoms or during the incubation period (14 days).⁵ People are required to follow accepted infection control practices. Aside from hand hygiene, one of the main infection control measures is the routine use of face masks.⁶ Hence, masks for everyday

use should be easily available for the general population. The types of protective masks available are cloth masks, surgical mask (3-Ply three layers mask), filtering facepiece respirators (N95), N99 type mask, masks with or without the respiratory valve, etc.⁵ Medical masks are a type of personal protective equipment used to prevent the spread of respiratory infections. These masks cover the mouth and nose of the wearer and if worn properly may be effective at helping prevent transmission of respiratory viruses and bacteria.⁷ The viral load in the exhale aerosol and droplets were different depending upon the aetiology of the infection but was exponentially reduced by wearing a surgical mask, wearing a mask in areas where sufficient distance is not feasible reduces the spread of the virus loaded droplets and therefore risk of transmission of coronavirus.⁵ If you wear a mask then you must know how to use and discard it. The WHO stated that, incorrect use and disposal of this mask may increase the rate of transmission.⁴ Moreover, the correct use of these masks are particularly important especially during this time when their use is becoming highly prevalent.⁸ Hence people should heavily rely on face masks to protect and prevent cross-contamination among the general population.⁴ It is likely that antiviral drugs and vaccine will be in short supply or that their delivery would be delayed.⁹ Therefore non-pharmaceutical intervention such as usage of mouth masks, hand hygiene and other hygiene measures might be effective as an early control strategy.¹⁰ Hence the purpose of this study was to assist knowledge, attitude and practices of use of the facemasks among the general population in Western Maharashtra to limit the spread of COVID-19 disease.

Materials and Methods:

A cross-sectional questionnaire study was conducted among the general population in the Western Maharashtra region. This study was aimed to assess the awareness, attitude and practices of the use of facemask among the general population during the COVID-19 pandemic. The study duration was three months. The participants were selected based on the following inclusion criteria: i) Age group above 18 years, ii) person wearing facemask from last few months. Mentally challenge people and health care workers were excluded from the study. The input parameters for sample size calculation was as follows: 80% power of the study, alpha error 0.05, effect size 0.2 (small), and degree of freedom as 5. The calculated sample size was 321 using G* Power software version 3.1.9.2 (Heinrich Heine University, Düsseldorf). The final considered sample size was around 350. The convenient sampling techniques were used in the study. A questionnaire was pretested and validated among 20 subjects to check reliability and variability and these subjects were not included in the final

analysis. The structured, self-administered, close-ended questionnaire was designed to collect the data which consisted of two parts and comprised of 25 questions. The first part consists of demographic data such as name, age, gender, and education. The second part consists of questions based on knowledge, attitude, and practices of facemasks. The questionnaire was designed on Google forms (Google LLC, Mountain View, California, United States) and the link was distributed among the general population via. Email, WhatsApp number and other social media platforms (Instagram, Telegram, etc.) and a few questionnaires were distributed in the form of hard copies. The reliability statistics were calculated and Cronbach Alpha was 0.681. Informed consent was taken from all the participants and a brief introduction was given about the study. Data collected were entered in a spreadsheet (Microsoft Excel 2018). Statistical analysis was done using descriptive statistics (number and percentage) using Statistical Package for the Social Science (SPSS) 23.0 version software (IBM Chicago, Illinois, United States). The p-value was set at 0.05 or 5%.

Results:

In **table 1** gives the demographic data of the participants, the age group being between 18-78 years old. The male participants were 48.3% while the female participants were 51.7%. In the education category, the highest percentage was of the graduates being 42%. In **table 2** assessment of knowledge of facemask in the general population was taken into consideration. For their protection, they must know the types of facemasks available, how long to wear them, which is the contaminated surface etc. Only 20% of the people know that the outside surface of the mask is not to be touched, 24.9% people were aware that a mask should be worn only for 8 hours whereas, only 28.3% preferred wearing an N95 mask over others. In **table 3** attitude of the general population towards wearing a face mask was seen. More than 50% (i.e. 51.4%) population strongly agreed to wear a face mask regardless of the condition of an individual (symptomatic/asymptomatic). 40% of the people think that the level of risk of catching coronavirus decreases with wearing a mask, while 36% of people think that a face mask is not essential for people who are vaccinated. Whereas 45.7% are uncomfortable with other people e.g. (Employees, shopkeepers) not wearing a facemask. In **table 4** is related to the practice among the general population on the usage of face masks 39.1% of the people often perform hand hygiene before wearing a facemask but not always. Most of the people always wear a facemask while stepping out of the house since the pandemic 42.3% believe that face masks cause difficulty in breathing 52.3% disagree with it.

Table 1: Demographic details of study participants (N=350).

Sr. No.	Particulars	Number (N)	Percentage (%)
1	Age (years)		
	18-78	350	100
2	Gender		
	Male	169	48.3
	Female	181	51.7
3	Education		
	10 th Grade	26	7.4
	12 th Grade	40	11.4
	Undergraduate	75	21.4
	Graduate	150	42.9
	Postgraduate	59	16.9

Table 2: Knowledge related questions' responses of study participants (N=350).

Sr. No.	Questions	Responses	Number (N)	Percentage (%)	Total N (%)
1	Do you use a facemask	I do	162	46.3	350 (100)
		Sometimes	44	12.6	
		Only outdoors	140	40	
		Never	4	1.1	
2	The mask should cover the following areas of the face	Nose only	23	6.6	350 (100)
		Mouth only	49	14	
		Nose and mouth	127	36.3	
		Nose, mouth and chin	151	43.1	
3	According to you how many times the same mask can be used	One time	112	32	350 (100)
		Two times	99	28.3	
		Three times	73	20.9	
		More than three times	66	18.9	
4	Ideally which surface of the mask should not be touched with hands	Inside the mask	129	36.9	350 (100)
		Outside the mask	70	20	
		Both	122	34.9	
		Can be touched without sanitization	29	8.3	
5	Which types of masks do you prefer wearing daily	Surgical mask	84	24	350 (100)
		N95	99	28.3	
		Cloth masks (Homemade)	94	26.9	
		Any of the above	73	20.9	
6	How long can you wear the surgical masks	8 hours	87	24.9	350 (100)
		4 hours	110	31.4	
		2 hours	93	26.6	
		1 hour	60	17.1	

7	What kind of protection do mask provide	Air-borne	133	38	350 (100)
		Bacterial	15	4.3	
		Viral	64	18.3	
		All	138	39.4	
8	Are you aware of reusable masks	Yes	121	34.6	350 (100)
		No	103	29.4	
		Not sure	77	22	
		Don't know	49	14	
9	Do you know how COVID-19 enters the human body	Nose	102	29.1	350 (100)
		Mouth	85	24.3	
		Eyes	30	8.6	
		All	133	38	

Table 3: Attitude related questions' responses of study participants (N=350).

Sr. No.	Questions	Responses	Number (N)	Percentage (%)	Total N (%)
1	I don't think wearing a mask works - it just gives people a false sense of security	Strongly Agree	38	10.9	350 (100)
		Agree	50	14.3	
		Disagree	137	39.1	
		Strongly Disagree	125	35.7	
2	Everyone, including people who do not have symptoms, should wear a face covering if they leave their home to prevent possible transmission of the Coronavirus	Strongly Agree	180	51.4	350 (100)
		Agree	127	36.3	
		Disagree	31	8.9	
		Strongly Disagree	12	3.4	
3	I worry that if I wear a face-covering out in public, other people will think I am infected with the Coronavirus	Strongly Agree	24	6.9	350 (100)
		Agree	33	9.4	
		Disagree	164	46.9	
		Strongly Disagree	129	36.9	
4	Face masks are too expensive	Strongly Agree	35	10	350 (100)
		Agree	63	18	
		Disagree	143	40.9	
		Strongly Disagree	109	31.1	
5	Wearing a face mask is too much of a hassle	Strongly Agree	20	5.7	350 (100)
		Agree	52	14.9	
		Disagree	177	50.6	
		Strongly Disagree	101	28.9	
6	When at an essential store, such as a grocery store or pharmacy how do you feel if employees or other shoppers are	Uncomfortable/ unsafe	160	45.7	350 (100)
		I'm okay with it wearing a mask	96	27.4	
		I'm unsure	60	17.1	

	not wearing masks	Don't know	34	9.7	
7	Do you think whether a mandatory face covering by law would make it easier to enforce wearing face coverings	Strongly Agree	141	40.2	350 (100)
		Agree	142	40.6	
		Disagree	47	13.4	
		Strongly Disagree	20	5.7	
8	Do you think your level of risk of catching coronavirus or COVID-19 decreases with wearing a mask	Strongly Agree	143	40.9	350 (100)
		Agree	156	44.6	
		Disagree	37	10.6	
		Strongly Disagree	14	4	
9	Use of facemask is not essential in which of the following groups	People who have no symptoms	46	13.1	350 (100)
		People who are well/healthy	54	15.4	
		People who are vaccinated	126	36	
		Don't know	124	35.4	
10	Do you think people should be fined for not wearing a mask (similar to one who is not wearing a helmet)	Strongly Agree	149	42.6	350 (100)
		Agree	126	36	
		Disagree	58	16.6	
		Strongly Disagree	17	4.9	

Table 4: Practices related questions' responses of study participants (N=350).

Sr. No.	Questions	Responses	Number (N)	Percentage (%)	Total N (%)
1	How often do you wear a facemask while going out	Seldomly	26	7.4	350 (100)
		Often but not always	49	14	
		Always	269	76.9	
		Never	6	1.7	
2	Do you perform hand hygiene before and after wearing a facemask	Seldomly	80	22.9	350 (100)
		Often but not always	137	39.1	
		Always	115	32.9	
		Never	18	5.14	
3	Do you remove your mask to talk to someone	Yes	65	18.6	350 (100)
		No	285	81.4	
4	Does wearing a facemask make you uncomfortable and cause difficulty in breathing	Yes	148	42.3	350 (100)
		No	202	57.7	
5	Do you wear your mask in public places or only on hospital premises to protect yourself against COVID-19	Yes	167	47.7	350 (100)
		No	183	52.3	

6	The mask should be discarded after 8 hours of its use	I'm aware	102	29.1	350 (100)
		I'm unaware	115	32.9	
		I'm unsure	77	22	
		I don't know	56	16	

Discussion:

Facemasks are used as a protective barrier to reduce the risk of transmission of micro-organisms.¹¹ Facemasks are used in the general population in Western Maharashtra not only to guard people against acquiring respiratory infection but also to decrease the threat of diseases from the wearer. Such use often increases during outbreaks and pandemics. Masks not only protect the wearers but also protects others by blocking the droplets ejected by the wearer while speaking and coughing. Therefore, keeping in mind, the purpose of the paper is to evaluate the knowledge, attitudes and practices of the masks in the general population.⁹

In our present study there was higher female participation (51.7%) as compared with male participation (48.3%). In the education category, the highest percentage was of the graduates being 42%. For their protection, they must know the types of facemasks available, how long to wear them, which is the contaminated surface etc. Only 20% of the people know that the outside surface of the mask is not to be touched, 24.9% people were aware that a mask should be worn only for 8 hours whereas, only 28.3% preferred wearing an N95 mask over others as compared to a study conducted by Kumar J *et al.* in 2020.

N95 respirators were associated with less filter penetration, less surface-seal leakage and less total inward leakage under laboratory investigatory conditions compared with surgical masks.¹² In recent systemic reviews and meta-analysis regarding surgical mask versus N95 respirator mask by the Chinese Cochrane Centre, Long Y *et al.* in 2020, which includes six randomized control trials there was no difference in the efficacy between surgical and N95 mask in preventing laboratory-confirmed influenza or respiratory viral infection.¹³ When we enquire about whether they felt difficulty while wearing a mouth mask, some had problems in breathing while wearing the mouth mask, which might be due to thick barriers provided by the manufacturing companies.¹⁴ The study conducted by Supehia S *et al.* in 2020 was observed over a 4 weeks study period that the usage of N95 mask in the low-risk area was considerably high despite training to the contrary.¹⁵ Similar findings were exemplified by Chungtai *et al.* in 2013 and Gammon *et al.* in 2008.^{16,17} This may be attributed to the belief that N95 respirators are superior to surgical masks.¹⁸ Proper use of face mask is considered to be major hurdles for widespread implementation and derived benefits. In addition, the use of medical mask only may provide a false sense of security and may lead to neglect of other essential practices such as social distancing and hand hygiene. Thus, using facemask alone may not be an effective strategy in preventing the transmission of viral respiratory diseases in

community settings was studied by Agarwal N *et al.* in 2020.¹⁹

In the present study, the participants who removed the mask to talk to someone was 18.6%. The study conducted by Jagdesh K *et al.* in 2020 is contradictory to our present study. In his study about only 13.8% of participants used to remove the mask while talking to the participants.⁴ In the present study participants perform hand hygiene before and wearing a facemask was 32.9%. According to a study conducted by Qing-Xia Ma *et al.* in 2020 after touching items that are contaminated with viruses, immediate hand hygiene is achieved by 75% of alcohol, hand sanitiser gel and disinfectant wipes.²⁰ Those using most of the public transport should use hand hygiene religiously as there are greater chances of transmission. In the present study majority of the participants were unaware that the mask should be discarded after 8 hours of use. A contradictory result was found in the study conducted by Jagdesh K *et al.* in 2020 where 75.6% of the participants (health care workers) knew that mask should be discarded in 8 hours.⁴ There is not enough evidence to prove that wearing a surgical mask protects every person from COVID-19.⁴ The limitations of the study were the small sample size. The study can be done by using a large scale and using a different variable on the facemask topic.

Recommendations:

1. There should be strict policy implementation against the use of facemask at the state and national level.
2. There should be an automatic agency that can monitor, implement, and manage different strategies to increase the use of facemask.

Conclusion:

The study concluded that the overall knowledge of study participants was average while attitude and practices of use of facemask were good in study participants. Therefore, comprehensive awareness programs and strict policy implementation should be needed in the population.

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