A Situational Analysis of, Use of Face Masks, and Social Distancing, in Srinagar District - A Descriptive Study from a Red Zone District of Jammu & Kashmir

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ABSTRACT

BACKGROUND

COVID-19 a disease caused by SARS CoV-2 virus ever since its emergence as a pandemic in March 2020 has taken a toll on human race. Social distancing and use of face masks in public places, are globally recognized as two vital components of the preventive strategy for slowing down the transmission of SARS CoV-2. The purpose of the current study was to quantify the behaviour of wearing masks and practice of social distancing amongst general population and also observing the same in one of the red zones of Jammu and Kashmir.

METHODS

A cross-sectional study, was conducted by the Department of Community Medicine, SKIMS Medical College, Srinagar [red zone] of UT Jammu & Kashmir during the 2nd lockdown announced from 15th April 2020 to 5th May 2020 that had made provision for relaxation of essential services. One hundred randomly selected locations [wards] within the city especially around the food outlets, bank, grocery stores, mohalla centres within the red zone which could operate during the lock down were included in the study to get the requisite sample.

RESULTS

From randomly chosen locations, 895 persons available for observation were taken up for the study. Mask use was seen in 67.3 % of population. Majority were wearing woven fabric masks (33.6 %) followed by 23.2 % (all women) using dupatta [head cover] as mask & 19.5 % using surgical masks. Reasons for not wearing the masks were that necessity of wearing them was not perceived in 68.4 % whereas 20.5 % reported discomfort on wearing masks. Social distancing was least observed by majority of 65 % (N = 582).

CONCLUSIONS

Despite awareness generation, use of mask and social distancing was not being practised. Robust behaviour change communication efforts with frequent reinforcement about the preventive measures can avert large morbidity & mortality from COVID-19 till vaccine becomes available and accessible to masses at large.

KEYWORDS

COVID-19, Masks, Social Distancing

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BACKGROUND

COVID-19 a disease caused by SARS CoV-2 virus was first identified amid an outbreak of respiratory illness in Wuhan city, Hubei Province of China. Initial reporting to WHO was done on December 31, 2019. It was declared a global health emergency on January 30, 2020 by WHO and a global pandemic on March 11, 2020. Illness caused by SARS-CoV-2 was termed as COVID-19 by WHO which is an acronym derived from "coronavirus disease 2019". This was an attempt to avoid stigmatising the virus's origin to any population, geographic or animal associations. CoV stands for coronaviruses which are a large family of viruses that cause illness ranging from common cold to more severe diseases. nCoV is a novel coronavirus, a new strain that has not been previously identified in humans. Ever since its emergence as a pandemic in March 2020 it had its toll on human race with high morbidity and disability along with high mortality in the initial phases of spread. It was the time when medical sciences faced the major challenge of treating this unknown infectious disease. Now as the symptomatic treatment is available, it still continues to be a disabling disease. With the invention of vaccine that is being provided in phased manner with priority groups receiving it first it will be a substantial time when it will be available to general population. Till then preventive measures such as face masks and social distancing are the effective resources in the hands of the global governments for handling the COVID-19 pandemic which has been having a disastrous impact on health care systems and economies throughout the world. Social distancing and use of face masks in public places, are globally recognised as two vital components of the preventive strategy for control of COVID-19 pandemic and slowing down the transmission of SARS CoV-2. These may be required for long periods of time to contain infection and prevent transmission to susceptible, and the population of which can only be decreased by increasing the coverage of currently available vaccines.

Face masks have been proven to be beneficial by an evidence of review & analysis.[1,2] Masks are especially recommended for the asymptomatic cases that are transmitting the disease to people. Centre for Disease Control, USA has recommended the use of cloth masks to prevent transmission of infection.[3] The recent guidelines recommended by the Centre for Disease Control, USA are for improvement of efficacy of masks. These measures include wearing of double masks viz cloth mask over a surgical mask as the first one serves as a physical barrier and second one as a filter against the remnant particles providing 90 percent reduction in exposure compared to 50 percent with use of single masks. Further it is recommended to knot the ends of the ear loops to improve the reduction up-to 95 percent. It has also suggested that 90 percent reduction in exposure is provided by the use of mask fitters over the double layer mask, thus their use is recommended to prevent air from leaking out and also to prevent from inhaling the aerosol particles.[4] Social distancing is another effective way of reducing the transmission of infection. This has been shown in review & meta-analysis that has revealed that the risk of infection was reduced by 10.2 % as the distance lengthened from 1 m to more.[5]

India confirmed the presence of SARS CoV-2 viral infection in its first suspected case on 30th January 2020 and COVID-19 was declared pandemic on 11th March 2020. It was on March 22nd 2020 that, India observed a 14-hour voluntary public curfew at the instance of the Prime Minister Narendra Modi. It was followed by mandatory lockdowns in COVID-19 hotspots DEF and all major cities. Further, on March 24th 2020, the Prime Minister ordered a nationwide lockdown for 21 days, affecting the entire 1.3 billion population of India. The country was divided into red, green and orange zones depending on exposure to coronavirus and other related factors in order to distinctly identify the level of threat posed by the disease in each district and the degree of containment efforts required. Red zones were areas or the hotspots having highest caseload. Orange zones were areas that had reported a limited number of cases in the past and there was no surge of cases recently. Green zones were the areas with zero confirmed cases as on that date or no confirmed case in the last 21 days. Union Territory of Jammu & Kashmir confirmed its first case of SARS CoV-2 on 16th March 2020 & first COVID-19 death on March 25th 2020 and soon lockdown was implemented.

Consequent to this contact tracing, screening and setting up of isolation facilities for active cases and quarantine centres for close contacts made it necessary for administration to declare many districts of the Union Territory of Jammu & Kashmir as red zones and Srinagar district was declared as red zone in April 2020. In the advent of circumstances where asymptomatic cases were rampant and people unaware of their SARS CoV-2 status, the importance of two vital preventive measures [wearing face masks & physical distancing] were greatly emphasized.

With a huge amount of awareness generation and public education going on through a variety of media, it was expected that the general public would adhere to both of these effective measures.

Objective

1. To determine the use of face masks amongst the general population.
2. To determine the observance of social distancing amongst the general population.
3. To determine various factors for non-compliance to use of masks in the defaulters observed in general population.

METHODS

It was a cross-sectional study, conducted by the Department of Community Medicine, SKIMS Medical College, Srinagar, Union Territory of Jammu & Kashmir during the 2nd lockdown announced from 15th April 2020 to 5th May 2020. During this phase of lockdown relaxation was allowed for operation of essential services. This study was conducted during the same period and some one hundred randomly selected locations [wards] within the city especially around

the food outlets, bank, grocery stores, mohalla centres within the red zones which could operate during the lock down were included in the study to get the requisite sample. Prior to random selection, a complete list of the registered food outlets, banks, grocery stores and mohalla centres for all wards was sought from the concerned regulatory authority. The random selection was done by using the statistical software.

Sample size was calculated using the formula

$$\frac{(1.96)^2 p(1-p)}{E^2}$$

Expected prevalence was taken as 50 %, E (allowable error) was taken as 5 %. This gave the minimum sample size of 384 and we took 895. The instrument used for collecting data was pretested and had four sections to evaluate for the presence or absence of face masks, type of masks, reasons for not wearing masks and practice of social distancing. Observation was done with complete observer technique, for a period of 15 to 20 minutes. Reason for not using masks was evaluated following observation, after seeking verbal informed consent by personal interviews. Purposive sampling was utilized here. Before the collection of data in field, formal training of the field teams was taken up.

Statistical Analysis

Data obtained was coded and entered into Microsoft excel 2016 spread sheet. Variables studied were categorical and dichotomous. Analysis was done in terms of proportions and percentages. The study was approved by the Institution Ethics Committee.

RESULTS

	N = 895	%
Wearing masks	603	67.3
Not wearing masks	292	32.6

Table 1. Use of Masks

67.35 % were using some kind of mask.

	N = 603	%
Cloth/linen	68	11.2
Dupatta [Head cover] as mask	140	23.2
Surgical face mask	118	19.5
N95 mask	34	5.6
Woven fabric masks	203	33.6
Handkerchief	40	6.6
Others	0	0 %

Table 2. Type of Masks

33.6 % were using woven fabric mask, 23.2 % were using dupatta as face mask and only 25.1 % were using masks with proven efficacy [surgical and N95 masks]

	N = 292	%
Discomfort	60	20.5
Not felt necessary	200	68.4
Not available	24	8.2
Not aware if needed	8	2.7
Others	0	0

Table 3. Reasons for Not Wearing Masks

68.4 % felt masks were not necessary whereas approximately a quarter felt discomfort while wearing masks.

	N = 895	%
No social distancing	582	65.0
At least 1 metre	258	28.8
≥ 2 metres	55	6.1

Table 4. Physical Distancing Practice by Individuals

65 % were not practicing any social distancing whereas only 6.1 % were seen following recommended 2 metre social distance.

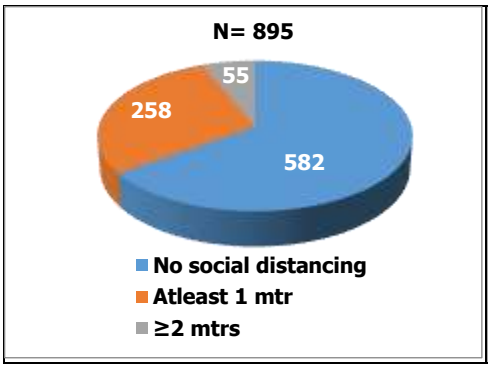

Figure 1. Physical Distancing Practice by Individuals

DISCUSSION

With increasing number of cases of COVID-19 in India, second lock down was imposed from April 15th 2020 to May 5th 2020. Nationwide stress was being provided on use of face masks & practice of physical distancing while moving out of houses for basic amenities of life. It was expected that in wake of the pandemic people would be very much compliant to the preventive measures. Mass media was active in delivering these messages to people. Despite this our study revealed that only 67 % of people were using face masks. This finding was significant especially at the point of time when the epidemiological curve for COVID-19 was on rise, and more than a quarter of the sampled population was without effective protection of masks. Masks have been shown as an effective measure in prevention of emission of viable viral particles in recent study by N. H. Leung et al.[6] coronaviruses are known for their spread through droplets & contacts.[7] Since there are phylogenetic & immunological similarities between SARS 2003, MERS-CoV and SARS CoV-2 infection, control measures for SARS CoV-2 have been extrapolated from the anecdotal experience with SARS in 2003. Seto et al. revealed that masks significantly reduced the risk of SARS infection among healthcare workers.[8]

The types of masks used were varied in our study, with 19.5 % wearing surgical masks, 5.6 % were wearing N95 masks whereas 11.2 % were wearing cloth / linen masks. Dupatta [head cover] or handkerchief in the form of mask or masks made of woven material were being used by 63.4 %. 99.7 % people observed could be seen wearing some type of face mask. This is in tune with the study conducted in Srinagar district by social media which revealed that 89 % respondents reported regularly wearing masks.[9] Since our study included observation of the subjects in contrast to questionnaire used in the previous study, the practice of wearing recommended masks was far from adequate.

Masks reduce chance of infection or transmission by 80 %.[8] Guidelines that support mask usage recommend surgical masks as means of prevention of transmission in suspected or confirmed COVID-19 cases and use of N95 in aerosol

generating procedures only.[10] In the past also strict adherence to proper application of surgical masks being protective against MERS has been deliberated by Jasmine Shimin Chung et al.[11] Abaluck et al. in their study also found that the average daily growth rate of confirmed positives was 18 % in countries with no pre-existing mask norms in contrast to 10 % in countries with such norms in place. The study also showed that the increased rate of deaths was 21 % in countries with no mask norms compared to 11 % in countries with such norms.[12]

There is laboratory-based evidence suggesting that household masks have some filtration capacity in the relevant droplet size range, in addition to having efficacy in blocking droplets and particles from the wearer.[13,14] Cloth face coverings that include even homemade masks made up of materials such as high-grade cotton, multiple layers and particularly hybrid constructions, are effective in reducing the spread of COVID-19 for the wearer and those around them as revealed by a new study from Oxford's Lever Hulme Centre for Demographic Science. The study also revealed that loosely woven fabrics, such as scarves were least effective.[15]

In our study, attempt was made to enquire about the non-compliance to masks from study subjects and among the various reasons provided, majority (69 %) felt that it was unnecessary. 21 % complained of discomfort while wearing masks. Kathleen Dohemy has also pointed out to claustrophobia, difficult to read lips & troubled breathing as common reasons for not wearing masks.[16]

Other effective measure in prevention of transmission is physical distancing, the measure that has much evidence supporting it. A review by a study that was conducted with World Health Organisation backing revealed that keeping a distance of at least 3 feet from other people lowered the chances of coronavirus infection spread by 82 % & keeping a larger distance of 2 m could be more effective. It was estimated that the speed of spread with social distancing could contain transmission in cities as 1-day delay in implementing social distancing resulted in a containment delay of 2.41 (95 % CI 0.97 - 3.86) days.[17]

In our study only 6.1 % of the subjects observed, were following the recommended social distance and majority (65 %) were not maintaining any physical distancing. This is in sharp contrast to the study conducted by Sabira Aalia Dkhar et al.[9] over social media in District Srinagar where only 87 % reported maintaining social distancing. The reason could again be that the observation has been conducted in our study in contrast to the voluntary response of the subjects through questionnaire alone made available through social media. The minimum safe distance for regular social activities that include breathing and talking in a study by Chanjuan Sun et al.[18] was determined at 1.6 – 3 m (5.2 – 9.8 ft.), while the maximum transmission distance was 8.2 m (26 ft.). These findings by Chanjuan Sun et al. explain that extended social distancing can effectively mitigate the risk of infection.[18] The profound effect in reduction of cases has been demonstrated from a study in China by Meirui Qian et al. which revealed that effective social distancing reduced the median infections by 92 %.[19]

CONCLUSIONS

India being the 2nd most populous country in the world has a huge susceptible population for the novel SARS CoV-2. It confirmed its first case of COVID-19 in January 2020 & is still continuing to add numbers to global COVID-19 cases. It was the number two contributor after United States of America, to COVD-19 cases of the world. Similar is the scenario of Union Territory of Jammu & Kashmir where first case of COVID-19 was confirmed on March 16th 2020 & substantial numbers are seen even after almost a year. Government of India started with indigenous vaccine drive of COVID-19 namely COVISHIELD (Vector based live viral vaccine) & COVAXIN (Inactivated vaccine), nationwide from 16th January 2021. The vaccine is being provided in a phased manner with priority going first to healthcare workers, followed by frontline workers. After this the vaccine shall be made available to high risk groups and then to general population. It is still not recommended to the age group of less than 18 years. It is being emphasized at the same time that all vaccinated individuals should maintain compliance to wearing masks and observing social distance.

Since the vaccine is being prioritized for high risk groups, vaccine uptake attitudes and its large scale availability will take long time for it to be the effective measure in control of the pandemic. In the wake of this situation reliable preventive measures include wearing of masks, social distancing & maintaining hand hygiene becomes even more important. Although there are evidences pointing out to surgical masks & some specific cloth masks being effective, nevertheless any mask be it even the cloth mask can be beneficial. The reason behind this is that it could be an additional tool to augment awareness of the importance of physical distancing in public places, thereby serving as a visual reminder. Despite awareness generation, use of mask and social distancing was not being practiced as observed in our study. This calls for robust behaviour change communication efforts with frequent reinforcement about the preventive measures. Implementation of same by gaining confidence of community leaders with their active involvement can avert large morbidity & mortality from COVID-19 till vaccine becomes available and accessible to masses at large.

The reasons of non-compliance to wearing of masks in the study, provides an insight into end-user perspective and calls for justified need of vaccination for the entire community. Still it's important that mask use and social distancing is taken up as behaviour by effective communication skills by our communities as the population aged 18 and younger will still be left out even with 100 % vaccine coverage as & when it is achieved due to the lack of data on safety and impact on them.

Wearing masks and social distancing are mitigation measures. Ignoring mitigation efforts could lead to substantial increases in pandemic outcomes even with improved vaccination coverage. Vaccination as well as preventive measures, are essential to control the pandemic and to prevent surges in hospitalizations and deaths. Social distancing, wearing of the mask is cost saving and effective. Additionally, until more information about vaccine impacts

as asymptomatic transmission are available, wearing the mask is important because although we may be protected from severe infection, or even getting symptomatic COVID-19, people may still pick up the virus and transmit it to somebody else.

Limitations of the Study

The study was conducted during the lockdown period. Although the number of cases during the same period was increasing daily yet India including Jammu and Kashmir had not attained the peak of epidemic. Thus the study might not be a true reflection of practices of use of mask and social distancing in general population although it provides an insight to the knowledge and practices during the pandemic situation prevalent then at that time. Future similar studies might be helpful in getting a complete picture of peoples practices of the preventive measures against the ongoing pandemic.

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REFERENCES

[1] Howard J, Huang A, et al. www.preprints.org/manuscript/202004.0203/v1.Face masks against COVID 19: an evidence review. Published online April 12, 2020.
[2] Greenhalgh T, Schmid MB, Czypionka T, et al. Face masks for public during covid-19 crisis. BMJ 2020;369:m1435.
[3] US Centres for Disease Control & Prevention. Recommendation regarding the use of cloth face coverings, especially in areas of significant community-based transmission. 2019.
[4] US Centres for Disease Control & Prevention. New CDC Coronavirus guidelines. 2021.
[5] Chu DK, Akl EA, Duda S, et al. Physical distancing, face masks and eye protection to prevent person to person transmission of SARS CoV -2 and COVID 19: a systematic review & meta-analysis. Lancet 2020;395(10242):1973-1987.
[6] Leung NHL, Chu DKW, Shiu EYC, et al. Respiratory virus shedding in exhaled breath and efficacy of face masks. Nature Medicine 2020;26(5):676-680.
[7] WHO. Internal Travel and Health: SARS (Severe Acute Respiratory Syndrome). CDC. Acute Respiratory Syndrome (SARS). Basic fact sheet 2003.
[8] Seto WH, Tsang D, Yung RWH, et al. Effectiveness of precautions against droplets and contact in prevention of nosocomial transmission of severe acute respiratory syndrome (SARS). Lancet 2003;361(9368):1519-1520.
[9] Dhkar SA, Quansar R, Saleem SM, et al. Knowledge, attitude and practices related to COVID-19 pandemic among social media users in Jammu & Kashmir, India. Indian Journal of Public Health 2020;64(6):205-210.
[10] Rettner R. Face masks may reduce COVID 19 spread by 85 %, WHO - backed study suggests. Live Science 10.8.2020.
[11] Official Guidance COVID-19: Guidance for infection control & prevention in healthcare settings. Version 1.0: Department of Health & Social Care, Public Health Wales, Public Health Agency, Northern Ireland, Health Protection Scotland & Public Health England, 2020.
[12] Chung SJ, Ling ML, Seto WH, et al. Debate on MERS-CoV respiratory precautions: surgical mask or N 95 respirators? Singapore Med J 2014;55(6):294-297.
[13] Abaluck J. The case for universal cloth mask adoption and policies to increase supply of medical masks for health workers (Social Science Research Network, Rochester, NY). SSRN Scholarly Paper ID 3567438. 2020.
[14] Papineni RS, Rosenthal FS. The size distribution of droplets in the exhaled breath of healthy human subjects. J Aerosol Medicine 1997;10(2):105-116.
[15] DIY Face Mask – 8 Steps in Making Protective Gear. Consumer Council, 2020.
[16] Dohemy K. Coronavirus News. COVID-19 and masks: Doctor, May I be excused? Lung Disease & Respiratory Health Aug 13, 2020.
[17] Zhanivei Du, Xu XK, Wang L, et al. Effectiveness of proactive social distancing in COVID19 outbreak in 58 cities of China. Emerging Infect Dis 2020;26(9):2267-2269.
[18] Sun C, Zhai Z. The efficacy of social distance & ventilation effectiveness in preventing COVID-19 transmission. Sustainable Cities and Society 2020;62:102390.
[19] Qian M, Jiang J. COVID-19 and social distancing. Journal of Public Health (Z Gesundh Wiss) 2020;1-3.