

COVID 19 Facts & Fallacies: Misconceptions Regarding Covid-19 among General Population of Northern India.

A KAP Study

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Abstract

Introduction: COVID 19, caused by the novel coronavirus is declared as a pandemic by the World Health Organization in March 2020. With the emerging coronavirus, there have been misleading news regarding the disease floating on various social media. Therefore, the current study was done to know the prevalence of misconception prevailing among the general population.

Methodology: A cross-sectional questionnaire study was conducted among 460 people to assess the prevalence of

existing misconceptions regarding the novel coronavirus. A questionnaire consisting 18 closed-ended questions was distributed through phone interviews, email and other social media platforms. The data was entered into IBM SPSS version 20. The percentage was calculated & chi-square test was applied. The level of significance kept at $p < 0.05$.

Result: The participants were 58.7% (270) were male & 41.3% (190) were females. Only 3% of people haven't passed 10th examination, 3% were 10th pass. The major

proportion of age was 20-30 years. The result shows association with the level of education as the majority of participants are in the educated group.

Conclusion: More prevalence of misinformation was seen in males than in females. The group comprising of educated participants showed correct information regarding Coronavirus.

Keywords: Coronavirus, COVID19, misconceptions, pandemic

Introduction

COVID 19 caused by the novel coronavirus is declared as a pandemic by the World Health Organization. Coronavirus which are enveloped RNA viruses that are spread among humans, birds, mammals, causing respiratory, neurologic, enteric & hepatic disease.^{1,2} There are Six coronavirus species known to cause human disease.³ Coronaviruses have been identified within the mid-1960s and are known to infect humans and a range of animals (including birds and mammals). Since 2002, two coronaviruses have evolved infecting animals and has caused outbreaks in humans: SARS-CoV (Severe Acute Respiratory Syndrome) which was identified in southern China in 2003, and MERS-CoV (Middle East Respiratory Syndrome), which was identified in Saudi Arabia in 2012. They have caused more than 1600 deaths altogether. Since December 2019, an increasing number of cases of novel coronavirus (2019-nCoV)infected pneumonia (NCIP) has been identified in Wuhan, a large city of 11 million people in central China.^{4,5,6} Several local health facilities also reported clusters of patients with pneumonia of unknown cause that was epidemiologically linked to seafood and wet animal wholesale market in Wuhan, Hubei Province, China.⁷ The Chinese Center for Disease Control and Prevention (China CDC) on December 31,2019 dispatched a rapid response team to accompany Hubei provincial and Wuhan city health authorities and to

conduct an epidemiologic and etiologic investigation. They reported the results of the investigation, identifying the source of the pneumonia clusters, and describing a completely unique coronavirus detected in patients with pneumonia whose specimens were tested by the China CDC during early stage of the outbreak.⁸ The initial working case definitions for suspected Novel Coronavirus Infected Pneumonia have supported the SARS and Mideast respiratory syndrome (MERS) case definitions, as recommended by the WHO in 2003 and 2012.^{9,10,11} A suspected case was defined as pneumonia that either fulfilled all the following four criteria fever, with or without recorded temperature; radiographic evidence of pneumonia; low or normal white-cell count or low lymphocyte count; and no reduction in symptoms after antimicrobial treatment for 3 days, following standard clinical guidelines or fulfilled the above mentioned first three criteria and had an epidemiologic link to the Wuhan Seafood Wholesale Market or contact with other patients with similar symptoms. The epidemiologic criteria for defining a suspected case was updated on January 18, 2020, once new information on identified cases became available. The criteria were the following: a travel history to Wuhan or direct contact with patients from Wuhan who had a fever or respiratory symptoms, within 14 days before the onset of illness.¹² A confirmed case was defined as a case with respiratory specimens that tested positive for the 2019-nCoV.As recommended Emergency Committee, on 30 January 2020, the WHO Director-General declared that the outbreak constitutes a Public Health Emergency of International Concern.¹² With the emerging coronavirus, there have been misleading news regarding the disease floating on various social media. Therefore, the current study was done to know the prevalence of misconception prevailing among the general population.

Methodology

The present cross-sectional study was done on 460 people of Northern India to assess the knowledge regarding misconceptions of novel corona virus during the period of lock down from 8th April 28th April. Sample size of 400 was calculated taking an estimated population size of 100000, keeping a confidence interval(z) of 95% & margin of error of (e) 5%. Expecting a response rate of 80% the questionnaire was sent to 500 people of which 460 people responded to it. The questionnaire was filled by the investigator through telephone interview, mail & other social media platforms convenience sampling was done as to maintain the guidelines of lock down. People willing to participate in the study were included whereas people who refused to participate in the study or couldn't comprehend the questions of the study were excluded. A verbal consent was obtained from the participating population.

An 18 variable, structured, close ended questionnaire in English and Hindi was distributed to people through phone interview, mail, WhatsApp, Facebook and other social media platform due to present situation. A 3-point Likert's scale was employed for recording the response. The questionnaire was made in English which was translated into Hindi and then again translated back to English to check the linguistic validity. The responses were kept anonymous and confidential to encourage honest responses. The questionnaire was reviewed and tested among 20 participants in order to ensure the reliability and validity of the questionnaire. The questionnaire was modified on the basis of the results of the pilot study. The information regarding prevailing misconceptions was obtained from messages circulating on WhatsApp, Facebook, media, various social media platform.

The data collected was entered & compiled using MS-Office Excel. Statistical analysis was done using SPSS version 20. Frequency, percentage was calculated. Cronbach's alpha was found to be 0.83. Chi Square test was applied. Statistical significance was kept at p value < 0.05.

Result

A cross sectional study was done to assess the prevalence of myths regarding COVID 19.

Of which 58.7% (270) were male & 41.3% (190) were females. Majority of the participants have completed graduation 48.7%, 38.3% have completed post-graduation. Only 3% of people haven't passed 10th examination, 3% were 10th pass. 7% of them were 12th pass n didn't have any further education. (table 1) The major proportion age was 20-30 years.

Table 1: Sociodemographic Data

Age	Frequency	Percentage
20-30	322	70%
31-40	79	17.2%
41-50	31	6.7%
51-60	23	5%
71-80	2	0.7%
81-90	2	0.4%

Gender	Frequency	Percentage
Male	270	58.7%
Female	190	41.3%

Education	Frequency	Percentage
Didn't pass 10 th	14	3%
Passed 10 th	14	3%
12 th passed	32	7%
Graduation	224	48.7%
Post graduation	176	38.3%

The overall distribution of the response is shown below in Table 2. Majority of answers being disagreed. Showing the awareness amongst the population. (Table 2, figure 1) 40.65% believed that Corona virus is spread through air

(air borne) that is why we use mask. 61.3% considered Sanitizer to be as effective as soap & water. 53.04% said that receiving package from China is not safe. 23% said that virus cannot survive on metal surface.

Table 2: Response of the Participants

Questions	Agree	Disagree	don't know
Eating garlic and onions will help ward off the virus.	96 20.80%	266 57.80%	98 21.30%
Exposing yourself to the sun or to temperatures higher than 25C degrees prevent the coronavirus disease (COVID-19)	108 23.47%	273 59.34%	79 17.17%
Being able to hold your breath for 10 seconds or more without coughing or feeling discomfort mean you are free from the coronavirus disease (COVID-19) or any other lung disease.	145 31.52%	231 50.21%	84 18.26%
Drinking alcohol protect you against COVID-19	25 5.43%	381 82.82%	54 11.73%
COVID-19 virus cannot be transmitted in areas with hot and humid climates	57 12.39%	334 72.60%	69 15%
Corona virus is spread through air (air borne) that is why we use mask.	187 40.65%	236 51.30%	37 8.04%
Taking a hot bath prevents the new coronavirus disease	98 21.30%	291 63.26%	71 15.43%
The new coronavirus can be transmitted through mosquito bites.	40 8.69%	338 73.47%	38 8.26%
Corona virus is caused by eating non veg.	49 10.65%	356 77.39%	55 11.95%

Can regularly rinsing your nose with saline help prevent infection with the new coronavirus?	108 23.47%	211 45.86%	141 30.65%
Homeopathy can treat corona virus	39 8.47%	270 58.69%	151 32.82%
Sanitizer is as effective as soap & water	281 61.08%	146 31.73%	33 7.17%
Only old people are affected by the virus	23 5%	430 93.47%	7 1.52%
Can spraying alcohol or chlorine all over your body kill the new coronavirus?	92 20%	294 63.91%	74 16.08%
It is not safe to receive a package from China	244 53.04%	142 30.86%	74 16.08%
Corona virus can survive for days on metal surface.	286 62.17%	94 20.43%	80 17.39%
The virus can survive in packaged food	169 36.73%	131 28.47%	160 34.78%
Gargling with warm water can protect you against the virus	216 46.95%	167 36.30%	77 16.73%

Figure1: Graphical Representation of Data

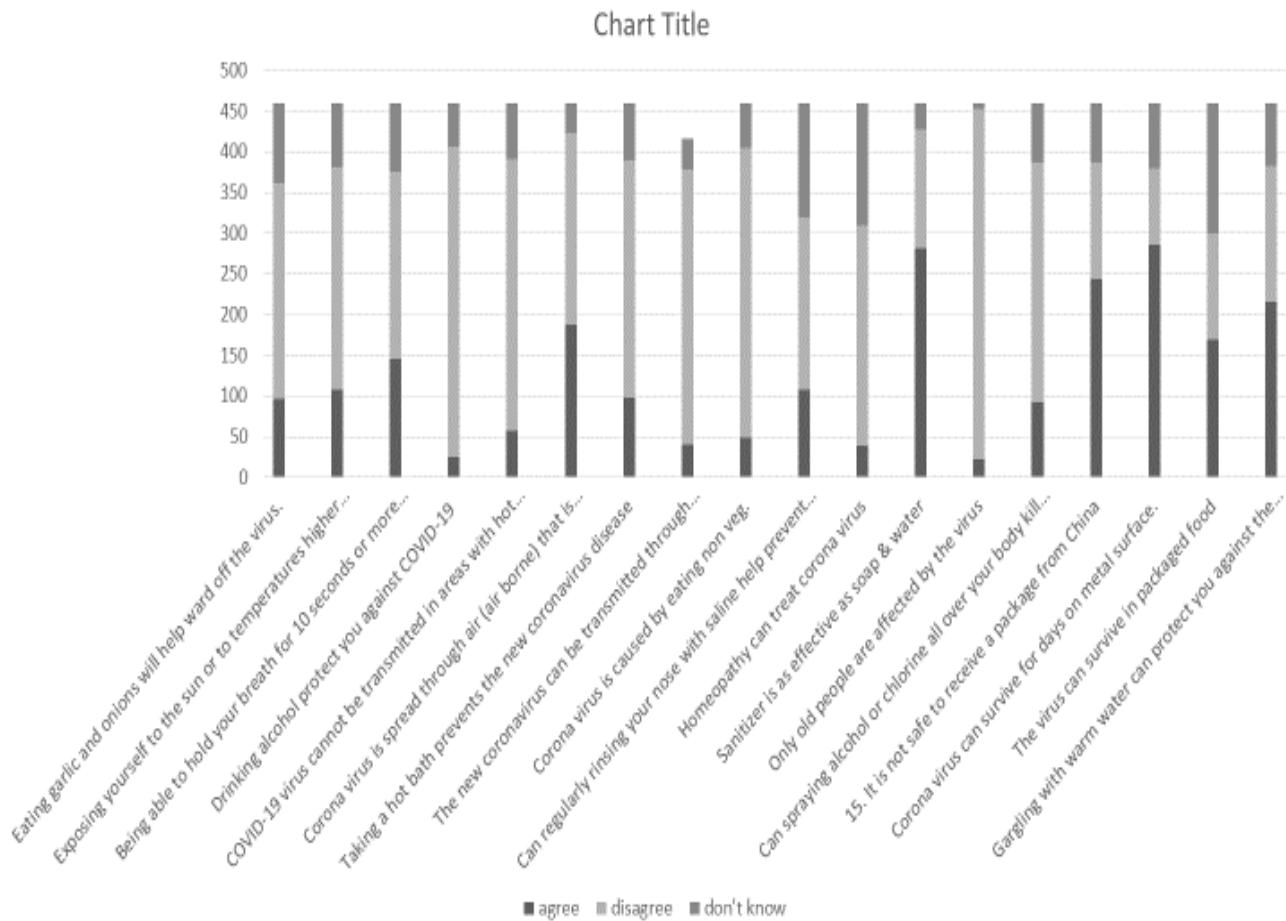


Table 3 depicts gender wise distribution of the study. 19.5% females believed in eating garlic will ward of the virus which is less as compared to males (21.9%). Both 61% male & female think that sanitizer is as effective as

soap & water. 56.3% males believed that it is not safe to receive package from china which was 42% in females.

Table 3: gender wise representation of response

Question	Gender	Agree	Disagree	Don't know
1.Eating garlic and onions will help ward off the corona virus.	Male	59 (21.9%)	142 (52.6%)	69 (25.6%)
	female	37 (19.5%)	124 (65.3%)	29 (15.3%)

Exposing yourself to the sun or to temperatures higher than 25C degrees prevent the coronavirus disease (COVID-19)	Male	68 (25.2%)	150 (55.6%)	52(19.3%)
	female	40 (21.1%)	123 (64.7%)	27 (14.2%)
Being able to hold your breath for 10 seconds or more without coughing or feeling discomfort mean you are free from the coronavirus disease (COVID-19) or any other lung disease.	male	99 (36.7%)	129 (47.8%)	42 (15.6%)
	female	46 (24.2%)	102 (53.7%)	42 (22.1%)
Drinking alcohol protect you against COVID-19	male	20 (7.4%)	222 (82.2%)	28 (10.4%)
	female	5 (2.6%)	159 (83.7%)	26 (13.7%)
COVID-19 virus cannot be transmitted in areas with hot and humid climates	male	38 (14.1%)	193 (71.5%)	39 (14.4%)
	female	19 (10%)	141 (74.2%)	30 (15.8%)
Corona virus is spread through air (air borne) that is why we use mask.	male	113 (41.9%)	136 (50.4%)	21 (7.8%)
	female	74 (38.9%)	100 (52.6%)	16 (8.4%)
Taking a hot bath prevents the new coronavirus disease	male	68 (25.2%)	156 (57.8%)	46 (17%)
	female	30 (15.8%)	135 (71.1%)	25 (13.2)
The new coronavirus can be transmitted through mosquito bites.	male	32 (11.9%)	187 (69.3%)	51(18.9%)
	female	8 (4.2%)	151 (79.5%)	31 (16.3%)
Corona virus is caused by eating non veg.	male	28 (10.4%)	212 (78.5%)	30 (11.1%)
	female	21 (11.1%)	144 (75.8%)	25 (3.2%)
Can regularly rinsing your nose with saline help prevent infection with the new coronavirus?	male	69 (25.6%)	119 (44.1%)	82 (30.4%)
	female	39 (20.05%)	92 (48.4%)	59 (31.1%)
Homeopathy can treat corona virus	male	25 (9.3%)	149 (55.2%)	96 (35.6%)
	female	14 (7.4%)	121 (63.7%)	55 (28.9%)

Sanitizer is as effective as soap & water	male	165 (61.1)	83 (30.7%)	22 (8.1%)
	female	116 (61.1%)	63 (33.2%)	11 (5.8%)
Only old people are affected by the virus	male	17 (6.3%)	249 (92.2%)	4 (1.5%)
	female	6 (3.2%)	181 (95.3%)	3 (1.6%)
Can spraying alcohol or chlorine all over your body kill the new coronavirus?	male	60 (22.2%)	171 (63.3%)	39 (14.4%)
	female	32 (16.8%)	123 (64.7%)	35 (18.4%)
It is not safe to receive a package from China	male	152 (56.3%)	77 (25.5%)	41 (15.2%)
	female	92 (42.4%)	65 (39.2)	33 (17.4%)
Corona virus can survive for days on metal surface.	male	159 (58.9)	69 (25.6%)	42 (15.6%)
	female	127 (66.8%)	25 (13.2%)	38 (20%)
The virus can survive in packaged food	male	106 (39.3%)	75 (27.8%)	89 (33%)
	female	63 (33.2%)	56 (29.5%)	71 (37.4%)
Gargling with warm water can protect you against the virus	male	131 (48.5%)	93 (34.4%)	46 (17%)
	female	85 (44.7%)	74 (38.9%)	31 (16.3%)

The response was associated with education & gender of the participant shown in Table 4. The response for Corona virus being air borne is not associated with gender or education. High level of significance was seen if transmitted through mosquito bites and use of alcohol. Whereas rinsing of nose, gargling, eating non vegetarian food wasn't associated with gender but level of education.

Table4

Questions	Gender (p value)	Education (p value)	Age (p value)
Eating garlic and onions will help ward off the virus.	0.01	0.04	0.01
Exposing yourself to the sun or to temperatures higher than 25C degrees prevent the coronavirus disease (COVID-19)	0.13	0.00	0.00

Gargling with warm water showed high level of significance to education& age but not with gender. When asked if Virus can survive in packaged food it wasn't associated with gender or age.

Survival on metal surface was significant to gender but not with age or education. Knowledge was associated with level of education.

Being able to hold your breath for 10 seconds or more without coughing or feeling discomfort mean you are free from the coronavirus disease (COVID-19) or any other lung disease.	0.01	0.01	0.00
Drinking alcohol protect you against COVID-19	0.05	0.00	0.47
COVID-19 virus cannot be transmitted in areas with hot and humid climates	0.41	0.00	0.00
Corona virus is spread through air (air borne) that is why we use mask.	0.80	0.11	0.00
Taking a hot bath prevents the new coronavirus disease	0.01	0.00	0.00
The new coronavirus can be transmitted through mosquito bites.	0.00	0.00	0.20
Corona virus is caused by eating non veg.	0.76	0.00	0.02
Can regularly rinsing your nose with saline help prevent infection with the new coronavirus?	0.43	0.00	0.65
Homeopathy can treat corona virus	0.19	0.03	0.29
Sanitizer is as effective as soap & water	0.58	0.18	0.11
Only old people are affected by the virus	0.31	0.00	0.00
Can spraying alcohol or chlorine all over your body kill the new coronavirus?	0.25	0.00	0.32
It is not safe to receive a package from China	0.24	0.00	0.34
Corona virus can survive for days on metal surface.	0.05	0.47	0.10
The virus can survive in packaged food	0.39	0.03	0.46
Gargling with warm water can protect you against the virus	0.60	0.00	0.00

P < 0.05, Chi square applied

The result shows association with level of education as majority of participants were in educated group.

Discussion

The digital world we are living in has lot of advantage but during this time of pandemic it has also helped in spreading misconceptions about COVID19. The need for the study was the rising misconceptions regarding COVID 19.

The novel coronavirus was detected in December 2019, hence giving no previous knowledge about it which has

given rise to many misconceptions. Every day a new myth about the treatment & prevention of the disease was discussed which has no scientific explanation. There were not many articles to support the misconception as clinical research is still going on around the world. The need of the present study was to make people aware regarding the disease and also to help the health professionals so they will know the prevailing myths & spread correct information.

The majority of participants were educated hence the prevalence of misconceptions among them was low.

High level of significance was seen in respect to education. 20.80% said garlic & onion will ward off the virus. Garlic may be a healthy food which has antimicrobial properties. However, there is no evidence from the current outbreak that eating garlic has protected people from the novel coronavirus infection.¹³

72.60% disagreed that the COVID-19 virus cannot be transmitted in areas with hot and humid climates. One can catch COVID-19, regardless of how sunny or hot the weather is. Countries with hot weather have reported cases of COVID-19.¹³

31.52% of people believed that holding breath for 10 seconds is a sign that the person is free from Corona infection. The most common symptoms of COVID-19 are dry cough, tiredness and fever. Some people may develop more severe types of the disease, like pneumonia. The best tool to confirm if you have got the virus-producing COVID-19 disease is with a laboratory test. One cannot confirm it with this breathing exercise, which can even be dangerous.

82.82% believed that alcohol consumption prevents COVID 19. Frequent or excessive alcohol consumption can increase your risk of health problems.

13 63.26% agreed that taking a hot bath will not prevent you from catching COVID-19. Your normal temperature remains around 36.5 degree Celsius to 37 degree Celsius, in spite of the temperature of your bath or shower. Actually, taking a hot bath with extremely warm water may be harmful, because it can burn you. The best method to protect yourself against COVID-19 is by frequently washing your hands with soap. By doing this you eliminate viruses which will get on your hands and avoid infection that would occur by then touching your eyes, mouth, and nose.¹³

73.46% did not agree that mosquitoes can spread coronavirus. To date, there has been no information nor evidence to suggest that.

The new coronavirus may be a respiratory virus which spreads primarily through droplets generated when an infected person coughs or sneezes, or through droplets of saliva or discharge from the nose. To protect yourself, clean your hands frequently with an alcohol-based hand sanitizer or wash them with soap and water. Also, avoid close contact with anyone who is coughing and sneezing.¹³

Spraying alcohol or chlorine on your body won't kill viruses that have already entered your body. Spraying such substances is often harmful to clothes & mucous membranes (i.e. eyes, mouth). Be aware that both alcohol and chlorine can be useful to disinfect surfaces, but they need to be used under appropriate recommendations.¹³

53.04% considered that it wasn't safe to receive a package from China

Researchers are studying the new coronavirus to learn more about how it infects people. At the time of writing this article, the world Health Organization (WHO) stated that the likelihood of becoming infected with COVID-19 from a billboard package is low since it's likely to have traveled over several days and been exposed to different temperatures and conditions during transit.¹⁴

Most data was described with the endemic human coronavirus strain (HCoV-) 229E. On different types of materials, it can remain infectious for from 2 hours up to 9 days.¹⁵

There is limited evidence that rinsing nose often with saline can help people recover more quickly from the common cold. However, regularly rinsing the nose has not been shown to stop respiratory infections.¹³ 23.47% were in favor of rinsing the nose.

People of all ages may be infected by the new coronavirus (2019-nCoV). Older people and other people with pre-existing medical conditions (such as asthma, diabetes, heart disease) appear to be more susceptible to becoming severely ill with the virus.¹³

WHO advises people of all ages to take steps to protect themselves from the virus, for example by following good hand hygiene and good respiratory hygiene.¹³

Hand sanitizer should contain 70% ethyl alcohol to reliably kill bacteria and viruses; some bacteria have shown tolerance to lower amounts of ethyl alcohol.^{16,17} Alcohol-based solutions were more effective than washing hands with plain soap in all studies, and reduced bacterial counts on hands to a greater extent than antimicrobial soaps or detergents in most experiments.¹⁸ Though there is no specific study till date in respect to Coronavirus.

Conclusion

COVID 19 was declared as pandemic by World Health Organization in March 2020. With the rise of the new virus, the fear of people has led to misconceptions. Social media, WhatsApp, being major source of misinformation. Careless forwarding of messages is the reason of the floating misconceptions.

The study shows that the educated participants are well aware. Females were more aware than males. Association with gender & level of education was observed. The study was done in a short span of time to know the misconceptions regarding the COVID19 so it can be cleared and the people can be educated about the virus.

Being aware is the least we can do to help fight the disease and also follow practice of hand washing, Social distancing. It's time we spend more on hand sanitizer than perfume. By taking all these precautions we can fight the novel Coronavirus & also lessen the burden on our health care professionals.

Limitation

Convenience sampling technique was applied.

The present study cannot be generalized as study was conducted among people who were available through phone interview, emails and other media platform.

Recommendation

Use of mass television, radio, different social media platforms, community leaders & mass media to create awareness among the public.

Health education should be given to the general population about the facts of COVID19 and educate them about misconceptions through available public media.

Similar studies need to be conducted to explore the different myths regarding COVID19 among the general population in the country.

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