

Myths and misconceptions related to CoVID-19 among future health care providers in a private University of Islamabad - An interventional study

Sajida Naseem ¹, Zahid Naeem ², Hiba Choudhry ³, Ghanwa Bareach ⁴, Saima Rafi ⁵, Fozia Tahir ⁶, Mansoor Ahmad Qazi ⁷, Sana Mangrio ⁸, Rehana Khalil ⁹

¹ Associate Professor, Department of Community Medicine, Shifa College of Medicine, Shifa Tameer-e-Millat University, Islamabad, Pakistan

² Professor & HOD, Department of Community Medicine, Shifa College of Medicine, Shifa Tameer-e-Millat University, Islamabad, Pakistan

³⁻⁷ Demonstrator, Department of Community Medicine, Shifa College of Medicine, Shifa Tameer-e-Millat University, Islamabad, Pakistan

⁸ Medical Social Officer, Department of Community Medicine, Shifa College of Medicine, Shifa Tameer-e-Millat University, Islamabad, Pakistan

⁹ Associate Professor, Department of Community Medicine, Unaizah College of Medicine, Qassim University, Kingdom of Saudi Arabia.

Author's Contribution

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Correspondence

Sajida Naseem

Sajida.scm@stmu.edu.pk

A B S T R A C T

Background: Erroneous treatments are hovering all over the internet and social media due to non-existence of the ultimate treatment to CoVID-19. There is a need to disseminate correct knowledge and encourage practices based on evidence, which can successfully prevent the spread of this deadly global pandemic.

Objectives: The objective of the study was to explore the myths and misconceptions related to CoVID-19 pandemic in a pre and post health awareness workshop among the future health care professionals in a private medical university in Islamabad, Pakistan.

Methodology: A quasi experimental study was carried out in March, 2020 over a period of two weeks at Shifa Tameer-e-Millat University, Islamabad. The participants included undergraduate medical, nursing and pharmaceutical sciences students, making a total sample size of 315. Simple random sampling was used. Data was collected using a self-designed questionnaire exploring the myths and misconceptions. A pre and post health awareness workshop was conducted and questionnaires filled by the participants. Data was analyzed using SPSS 23.

Result: A change in the frequency of concepts related to myths and misconceptions was observed following the health awareness session, results were statistically significant using McNemar's test in context to majority of the myths and misconceptions, p-value < 0.05.

Conclusion: Health education has very important role in public health especially in times when the health problem is novel. In such situations, emphasis should be paid on the health education as it can modify the behavior regarding myths and misconceptions which can contribute to decrease in morbidity and mortality.

Keywords: CoVID-19, health education, myths, misconceptions, healthcare providers, Pakistan

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Introduction

CoVID-19 was first uncovered and revealed in Wuhan, China in December 2019 as the epidemic of respiratory illness comprising of breathing problems, fever, cough and pneumonia, with 14 days' incubation period. This infection spreads through droplet infection as a result of coughing and sneezing from person to person. Hence, the prevention of this spread is possible by restraining from effected people.¹ It has been reported that till Sept 2020 there are over 277,333 cases globally and 11,384 fatalities worldwide, and in Pakistan 302,020. The World Health Organization declared the outbreak a Public Health Emergency of International Concern on 30 January, and a pandemic on 11 March.²

Erroneous treatments are hovering all over the internet and social media due to non-existence of the ultimate epidemiology & treatment to this disease. The spread, the cause and the cure of CoVID-19 since the spread are recognized as myths and illusions concluding to incorrect facts.^{3,4} Social media being the major platform of such myths have heaps of ongoing discussions claiming that the spread can be obstructed by mouthwash, garlic, gargling with bleach, third-generation antibiotics, restriction on Chinese food, frozen food and meat, which is not approved by any local and global health organization what so ever. However, various tests and trials are in progress to define treatment and identify the accurate source of this virus.^{5,6}

World Health Organization (WHO) and various health agencies have taken necessary measures to regulate the information and drive out the misapprehensions of CoVID-19 and its cures. Similarly, surgical and other masks are in use as a protection which is being constantly suggested and is effective.^{7,8} An additional subject has been argued, that the virus can spread through parcels and posts arriving from Chinese origin. It cannot be concluded; in fact, the virus cannot survive more than nine days on a surface and can easily be disinfected by antiseptics.⁷

Another misconception is that pets or other animals are source of transmitting the virus, its outspread were linked to the Hunan Seafood Wholesale Market. There is no evidence to believe that any animal or pet is a source of infection. According to Centre for Disease Control (CDC) there is no evidence that animals and pets can be

infected with the new corona virus. WHO recommends handwashing with soap and water after contact with any surface and pets? Furthermore, it is widely believed that pneumonia vaccines or third generation antibiotics can protect against CoVID-19.⁸

People of all ages can be infected by CoVID-19. Misconception regarding more susceptibility of older people exists. Though, those who are suffering with chronic medical conditions (such as hypertension, diabetes mellitus, cardiovascular diseases, asthma and other comorbid conditions), appear to be more susceptible and have high mortality.⁴

The above misconceptions and theories portray the fact that there was a need to disseminate correct knowledge and encourage practices based on evidence, which can successfully prevent spread of this deadly outbreak worldwide. Therefore, this study was designed to explore the myths and misconceptions related to CoVID-19 pandemics in a pre and post health awareness workshop among the future health care professionals.

Methods

A quasi-experimental study was carried out in the beginning of March, 2020 over a period of two weeks at Shifa Tameer-e-Millat University, Islamabad after taking approval from IRB Ethics Committee. Simple random sampling was used to select participants of the study after forming a sampling frame. The participants included undergraduate medical, nursing and pharmaceutical sciences students. The sample size of 315 was calculated using online Raosoft sample size calculator, keeping 95% confidence level, population size 1500, anticipated response 50% (being a novel virus), and margin of error 5%. The data collection was done in three different settings of STMU.

Informed Consent was taken from the participants regarding the data collection pre- and post-intervention, following which a pilot tested self-designed, self-administered questionnaire comprising of variables focusing on the myths and misconceptions related to source, transmission, prevention, treatment and outcome were distributed to them. They were asked to fill out the questionnaire which took on an average seven minutes.

The filled questionnaires were collected by the researchers. Following this, a power point presentation by two of the investigators was given to them in 20 minutes regarding the epidemiology, myths and misconceptions related to CoVID-19 pandemic. The entire activity was carried out in English language as this is the medium of instruction. The audience came up with an interactive discussion after the presentation and found it very useful as it was very early in the CoVID-19 before the locked down was implemented. Table 1 represents the myths, facts and health education messages given to study participants. The questionnaire was distributed to all participants after the intervention and collected.

Data was entered and analyzed using SPSS version 23.0. Descriptive statistics were calculated for both qualitative and quantitative variables. Inferential statistics using McNemar’s test was applied to determine the understanding of the facts related to the myths following health education, keeping p-value <0.05.

Table 1: Myths, Facts and Health Education regarding CoVID-19 given to participants

Myths	Facts	Health Education
Deliberately created for /by China	Analysis of genome sequence data showed no evidence that the virus can be created in a lab.	No evidence that the virus is man made in laboratory by Chinese to disrupt economy of other countries.
Common Signs & Symptoms (S/S)	Resemble those of common flu and pneumonia, SARs-CoV and MERs-CoV infection from same family	Sore throat, sneezing, dry cough, anosmia are considered easy to observe by the public
Non-Vegetarian/ omission of meat are not infected	No such evidence	Both vegetarians and meat eaters have been infected.
Elderly with comorbid are susceptible as much as any age	With increasing age immunity decreases, and hypertension diabetes mellitus, cancers, bronchial asthma, immune-compromised persons are more susceptible.	Cannot be associated with old age only, however with ageing immune system weakens along with increase in comorbidities and mortality
Eating Chinese food increases risk	No evidence has been found	If eating Chinese food can cause this infection than eating in Italian, Korean, Japanese and Iranian restaurants may also cause infection but this is not the case.
Imports from	The virus has different	For the virus to stay

China increases the risk	life span on different surfaces e.g. metal, glass and plastic :3-hours-3 days Cardboard: 24 hours	viable it needs specific environmental conditions e.g. temperature, UV exposure and humidity that are not usually available in shipping packages.
Transfer from pets to humans	No evidence has been found	Cats have been found to have developed this infection after being exposed with high doses of the virus.
Most dangerous virus so far	It has a mortality rate of 2% which is much less as compared to other viruses.	As pandemic and due to non- availability of drugs and vaccines for disease, people got scared and started fearing as most dangerous.
Regular hand washing does not reduce the risk of transmission	Hand washing with soap for 20 seconds inactivates microorganisms the virus and temporarily suppresses the growth	Hand washing is one of the most important preventive measure
Closing borders will stop transmission	Travel restrictions in its have been beneficial	Entry of foreigners into every country was bringing more cases of CoVID-19, so travel ban and travel quarantine is important.
Use of Napkins while sneezing does not prevent	Covering mouth while sneezing prevents the spread of virus present in the form of droplets in the air	Use of all types of disposable mask is an essential step in the prevention
Regular mouth gargles with salt or saline water is preventive	Gargling with salt water in common cold does help to soothe throat but it does not kill the virus microorganisms.	Regular mouth rinsing or gargling with salt water or saline water does not kill the virus. It can only help to temporarily relief cough or sore throat.
Eating garlic, home remedies is protective	Garlic, turmeric & onions have antimicrobial properties.	There is no evidence
Pneumonia vaccine is protective	There is no vaccine for CoVID-19 till date. It is a vaccine against bacteria	Several researches and trials are ongoing on to develop a vaccine

Results

The total sample size in this study was 315; mean age was 22.15 ± 1.3 years. Majority of them were females 57.1% while 42.86% were males. The participants belonged to different undergraduate disciplines in STMU which included medical, nursing and pharmaceutical sciences, as is presented in Figure 1.

Pre and Post Workshop Comparison of the frequency and proportions of Myths & Misconceptions regarding the source, transmission, prevention, treatment and outcome of CoVID-19 Infection. Though a change in the frequency of concepts related to the myths and misconceptions was observed following the health awareness session, the results were statistically significant in most myths and misconceptions, p-value < 0.05. These are presented in Table 2, 3 and 4.

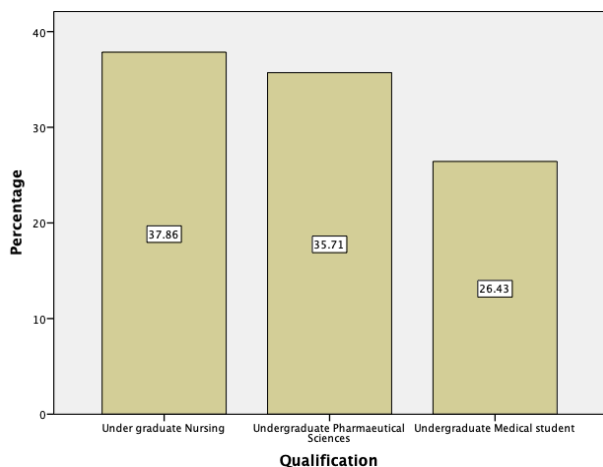


Figure 1: Undergraduate students belonging to different disciplines in STMU, Islamabad.

Table 2: Pre and Post Workshop Comparison of Percentage of Myths & Misconceptions regarding the source and transmission of CoVID-19 Infection.

Myths & Misconceptions	Pre-Workshop (%)			Post-Workshop (%)			p Value
	Yes	No	Don't Know	Yes	No	Don't Know	
Deliberately created for China	40	40	20	11.4	87.1	1.4	< 0.01
Infection is limited to China	9.3	87.9	2.9	2.9	95.0	2.1	> 0.05
Common signs & symptoms known	95.7	2.9	1.4	97.1	2.9	-	> 0.05
Emerged with direct contact with Bats & Snakes	28.6	44.3	27.1	3.6	92.9	3.6	< 0.01
Non-Vegetarian are not infected	10	77.9	12.1	99.3	-	0.7	> 0.05
Consumption of non-halal food is risky	40	47.1	12.9	3.6	95.7	0.7	< 0.01
Elderly with comorbid are more susceptible	67.1	22.9	10.0	88.6	10.7	0.7	< 0.01
Eating Chinese food increases risk	31.4	52.9	15.7	2.1	97.9	-	> 0.05
Imports from China increases risk	61.4	27.1	11.4	9.3	90	0.7	> 0.01
Omission of meat in diet reduces risk	13.6	70.7	15.7	0.7	99.3	-	> 0.05
Transfer from pets to humans	39.3	30.0	30.7	7.1	91.4	1.4	< 0.01
Most dangerous	33.6	52.9	13.6	15.0	85.0	-	> 0.05

Table 3: Pre and Post Workshop Comparison of Percentage of Myths & Misconceptions regarding the prevention against CoVID-19 Infection.

Myths & Misconceptions	Pre-Workshop (%)			Post-Workshop (%)			p-value
	Yes	No	Don't Know	Yes	No	Don't Know	
Regular hand washing reduces the risk	91.4	7.1	1.4.0	95.7	4.3	-	> 0.05
Closing borders will stop transmission	65.7	19.3	15.0	52.9	45	2.1	< 0.01
Meeting Chinese people with flu should be avoided	82.1	14.3	3.6	80.0	20.0	-	> 0.05
Use of napkins while sneezing prevents	71.4	15.7	12.9	73.6	26.4	-	> 0.05
Covering mouth while sneezing protects	63.6	30.0	6.4	35.0	62.9	2.1	< 0.01
Regular moth rinsing with salt water is protective	37.1	35.7	27.1	11.4	85.7	2.9	< 0.01
Eating garlic is protective	11.4	52.9	35.7	2.9	97.1	-	> 0.05
Role of gargles in prevention	11.4	42.1	46.4	6.4	93.6	-	> 0.05
Combination of turmeric, onion & honey water is protective	42.9	32.9	24.3	46.4	52.9	0.7	< 0.01
Screening of travelers is preventive	87.9	10.0	2.1	35.0	65.0	-	> 0.05
Mass burial of infected patients is preventive	18.6	54.3	27.1	4.3	92.1	3.6	< 0.01
Pneumonia vaccine is protective	11.4	66.4	22.1	1.4	97.1	1.4	< 0.01

Table 4: Pre and Post Workshop Comparison of Percentage of Myths & Misconceptions regarding the treatment and outcome of CoVID-19 Infection.

Myths & Misconceptions	Pre-Workshop (%)			Post-Workshop (%)			p-value
	Yes	No	Don't Know	Yes	No	Don't Know	
Wearing mask protects	42.9	46.4	10.7	16.4	83.6	-	> 0.05
3 rd Generation Antibiotics are effective	8.6	67.9	23.6	2.9	96.4	0.7	< 0.01
Homeopathy & Ayurveda provide cure	11.4	50.7	37.9	0.7	99.3	-	> 0.05
All patient ultimately die	13.6	67.9	18.6	2.9	93.6	3.6	< 0.01
No cure	27.9	42.9	29.3	97.1	2.9	-	> 0.05
No vaccine	57.9	29.3	12.9	97.9	2.1	-	> 0.05

Discussion

CoVID-19 is a global pandemic now with more than 200 countries being affected. When the novel Coronavirus outbreak happened, a lot of misconceptions took birth alongside the global pandemic rapidly spreading via social media. Since the virus was completely new, no

specific treatment, vaccine or drug was available for it. So, all these factors together created chaos among the general population. As it was first recognized in Wuhan city of China, majority of these myths were related to either meat market of Wuhan or Chinese people.

Studies carried out in Nigeria, United States of America, Pakistan and multiple other countries showed that participants strongly believed that the virus was either deliberately created for China or by China in a laboratory located close to Wuhan.⁷⁻⁹ This is in accordance with these studies possibly because the respondents believed that this has been done in order to bring down China's growing economy.

Racheal in her study showed that the signs and symptoms of CoVID-19 resemble those of common flu and that the infected individual knows when he gets the infection.^{10, 11} our study showed the same findings because the participants believed that the signs and symptoms of CoVID-19 are common as in any viral Upper respiratory tract infection. Majority of the participants of our study agreed with the myth believing that CoVID-19 shares close resemblance with SARS-CoV and MERS-CoV, which seem to have originated in bats and from snakes.^{12, 13}

In a study carried out by Swapnajeet Saho among general population showed that eating non-vegetarian food (meat/eggs/fish/chicken) can lead to this infection based on the assumption that the virus first started from meat market of Wuhan, besides India with more than 4.85 million cases, is globally on second place after USA and their diet is predominately non-vegetarian.¹ These results were not in accordance with our results as our study focused on the absence of infection in non-vegetarians having properly cooked meat. In other studies, omission of meat from the diet in view of reducing risk of the infection has been focused which again showed no similarity with our results.⁶

Multiple studies carried out in different countries showed that majority of the participants believed in the fact that CoVID-19 affected the elderly more or elderly with comorbidities which include hypertension, diabetes mellitus, asthma, etc. were more vulnerable to the infection.¹⁴⁻¹⁵ In our study, majority of the participants agreed with this fact owing to the possibility of weak or

compromised immune system at older age. Zumama Khalid in her study at the Aga Khan University (AKU), Karachi showed that the virus cannot survive for long in unfavorable environment and it has a variable life span on different surfaces. However, in the light of this myth, majority of the population started believing that receiving packages from china or eating at Chinese restaurants increased the risk of infection.^{16, 17} the results of these studies showed similarity with our survey study.

Many studies have shown that the respondents strongly believed in transmission of the infection by pets, however, scientists have carried out multiple experiments and finally concluded that the replication of this virus in cats, dogs, pigs and chicken is poor, provided adequate laboratory environment is available. So, no concrete evidence has been found on this myth and the results of these studies stayed in line with our study.^{18, 19}

As soon as CoVID-19 infection was declared a pandemic by WHO, it created chaos world over. People started fearing the virus, considering it deadly and one of the most dangerous of kind because of the non-availability of vaccine or specific treatment.^{16, 17} increased media reports on the increasing number of deaths further fueled similar misinformation. Multiple studies carried out in different countries had similar results. Zumama and Gurmeet found that the regular handwashing with soap and water for 20 seconds plays an essential role in the prevention of CoVID-19 to temporarily suppress the growth of virus.^{15,16} Our study showed similar results and this could be perhaps because of the extensive health education program carried out both by WHO and social media.

Research carried out in Karachi, Pakistan showed that the effect of travel restrictions in the spread of CoVID-19 indicated that these were beneficial. However, the airlines have violated these restrictions which increased the likelihood of developing CoVID-19.^{19, 20} our study agreed with these travel restrictions. Gurmeet Singh in his study showed that covering mouth with a napkin or disposable tissue while sneezing prevents the spread of CoVID-19.⁶ our study also showed similar findings as covering mouth can prevent the spread of droplets in air.

A study done in Lahore, Pakistan showed that a good respiratory hygiene is very important to prevent the

spread of CoVID-19.¹⁹ If an infected person sneezes and does not cover his mouth, he will be the source of infection to everyone who is around him. Our study showed similar findings. Studies done in the UK, India and by WHO have elucidated the misconceptions about rinsing mouth with salt water or saline solution to kill the virus present in nose or throat.^{16,17} This strategy may help to soothe a sore throat or common cold, but this practice will not prevent anybody from developing CoVID-19, as responded by our participants.

Studies carried out locally as well as in the USA and India have discussed about the consumption of garlic, turmeric & onion used as home remedy to help common flu as it has antimicrobial properties. However, the myths have been snapped by WHO and Michael Abiola Okunlola.¹⁷ Our study has shown similar results as most of the people disagree with this myth. WHO explained the most common symptoms of CoVID-19 as dry cough and tiredness which somehow mimicked the symptoms of pneumonia.¹⁵ a study done in India has discussed a myth that vaccines against pneumonia can protect you against CoVID-19, but the evidence says that pneumococcal vaccine and Hemophilus influenza Type B vaccine do not protect against CoVID-19.¹⁴

Health education among the future health care professional needs to be addressed for adequate control of the Pandemic. In the absence of any post intervention data available, our study stands as light house for future studies to be held in this regard. It is recommended that during the times of pandemic, health education session is a useful means of spreading the facts related to different myths. It should be assessed and done periodically for the spread of corrective measures in order to ensure the protection and prevention against a disease.

Conclusion

Health education has a very significant role in public health especially in times when the health problem is novel.

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