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Coronavirus Outbreak: Busting common misconceptions about COVID-19 in a village of Maharashtra, INDIA: A questionnaire based cross sectional study

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Abstract

Aim: To assess the common myths and misconceptions about spread of COVID-19 among adults living in a village of Maharashtra, INDIA.

Methods: A self-administered, close-ended, structured 16-item questionnaire adapted from World Health Organization (WHO) myth-buster document was translated into Hindi language. Data was collected from 268 participants. The study was conducted in three phases- In Phase I, the questionnaire about myths and misconceptions of SARS-COV-2 was developed in the local language. Phase II consisted of validation of the questionnaire by a group of experts. In Phase III questionnaire was distributed among the villagers at their respective residence. Statistical analysis was performed using IBM SPSS (v.21). Chi-square test for proportion was used to compare the proportion presence and absence of myths. A $P \leq 0.05$ was considered statistically significant.

Results: The mean age of the participants was 40.11 ± 11.09 years. In total, 97.8% of the participants had myths about the spread of COVID-19. There were only 6 participants who aware of the spread of COVID 19.

Conclusion: It was observed that majority (95.80%) of the participants had myths regarding spread of COVID 19 disease.

Keywords: Covid 19, SARS-CoV-2, IBM SPSS, WHO

Introduction

In December 2019, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the strain of Coronavirus that causes Coronavirus disease 2019 (Covid-19) was identified in Wuhan, China [1–4]. The first case on SARS COV2 was identified in India on 30th January 2020. Due to increase levels of spread of SARS-CoV-2 outbreak, World Health Organization (WHO) declared SARS-CoV-2 outbreak the as a pandemic on March 11, 2020.[5] To prevent community transmission of the disease the Indian was under nation-wide lockdown since 25 March, 2020 to curb the spread of the novel coronavirus.

The accelerated increase in Covid-19 cases had widespread the myths and misconceptions with regards to the transmission COVID 19 disease.[1]. Since the course of this disease, its outcome, and long term effects were unclear, a state of panic aroused among the general population with social media providing easy access to information concerning this disease. A particular concern in this regard is the spread of misinformation about COVID-19 among general population which would further add to fear and anxiety.[6] Midst this situation, the World Health Organization (WHO) had addressed the topic, that is, “Myth Busters” on its website to avoid the spread of false information.[7]

Hence, understanding awareness and myths about COVID-19 in people living in rural areas may prove important for improving emergency responses, and may help public health authorities in designing effective campaigns. Since this disease is swiftly spreading across the globe, it calls for a rapid testing methodology to assess the populations knowledge and perception of the infection.[8] Thus, this study was conducted to assess the myths and misconceptions about transmission of COVID 19 among villagers.

Methodology

This cross sectional study conducted in 3 phases in a village in Vidarbha region of Maharashtra to assess the myths and misconceptions about spread of COVID 19. In Phase I, questionnaire about myths and misconceptions of SARS-COV-2 was developed in the local language. Phase II consisted of validation of the questionnaire by the group of experts. In Phase III questionnaire-based study was conducted among individuals above 20 years of age in a village of Maharashtra to assess the myths and misconceptions towards spread of COVID-19 disease. The study was undertaken after obtaining the relevant permission from Scientific Advisory Committee and Institutional Ethics Committee of the institution. The reporting of the study was done according to STROBE guidelines.

Sample Size Derivation and Sampling Technique

The sample size of 280 was derived based on the previous questionnaire study conducted by Lau J et al[9] on misconceptions of H1N1 influenza epidemic in Hong Kong. The formula for sample size: $n = (Z\ \alpha/2)\ 2\ P\ (1 – p)/d2$ at 95% confidence interval The convenience sampling technique was used and no monetary benefit was offered to participants.

Data Collection

A self-administered, close-ended, structured 16-item questionnaire adopted from World Health Organization (WHO) myth-buster document.[7] This questionnaire was translated and back translated into Hindi language by a bilingual expert and corrections were done asper their

suggestions. The Hindi questionnaire was reviewed for content validity by group of dental public health experts. Evaluation was done for the similarity of the instructions, items and response format regarding wording, sentence structure, meaning and relevance. Ambiguities and discrepancies were resolved by re-translation and back-translation of the items that did not retain their original meaning. Cronbach's coefficient was found to be 0.78, which showed good internal reliability of the questionnaire.

Survey Tool

Demographic details about the participants were recorded and knowledge and myths about COVID 19 were evaluated using 16 questions in yes/no/don't know format. Questionnaire included 4 questions (Q1, Q2, Q3,Q4) for assessing the knowledge of spread of coronavirus disease(Q1) and about the various treatment options available when the study was conducted. (Q2,Q3,Q4). The remaining 12 questions were about myths (Q5-Q16) regarding spread of COVID 19. For the questions related to myths, a sub question was asked for the source of information which included options like: 1. Digital or print media, 2. Social media ,3. other sources. Score 1 was given if the participants had myth and score 0 was given for no myth. The inference was drawn based on the presence or absence of myth. (minimum score= 0 and maximum score= 12) and were categorized as low level of myths (1-4), medium level (5-8), high level (9-12).

Statistical Analysis

Statistical analysis was performed using IBM Statistical Package for the Social Sciences (Statistics for Windows, Version 21.0. Armonk, NY, USA: IBM Corp.). The descriptive summary statistics included percentages, means, and standard deviations. Chi-square test for proportion was used to compare the proportion presence and absence of myths. $P \leq 0.05$ was considered statistically significant for all analyses.

Results

The questionnaire was distributed among 280 participants out of which 268 returned the questionnaire. There were 52.6% male and 47.4% female participants in the study. The mean age of the participants was 40.11 ± 11.09 years. Eighty one percent participants claimed that they were aware about the modes of transmission of coronavirus disease and 63.8% participants believed strong immune system plays an important role in getting recovered from coronavirus disease. Out of total participants 97.8% participants had myths about spread of COVID-19. There were only 6 participants who were found to aware of the spread of COVID 19. It was observed that only 5.2% of the participants had high level of myths while 48.1% participants had low level of myths (score 1-4) and 44.4% participants had medium level of myths. Most of the participants (55.6%) believed that COVID 19 would spread at higher temperature (above 25 degrees). 63.4% participants believed that eating non vegetarian food causes COVID-19. Most common source of information for these two questions was print media (news papers) or digital media. The responses of the participants showed that most of them were not aware about the spread of coronavirus diseases. Participants didn't know whether taking hot water bath, eating garlic or using hand driers were effective in killing coronaviruses. Two questions related to treatment of coronavirus disease were asked; for which 84.7% participants believed that person suffering from COVID can recover and 62.7% believed that antibiotics can help to prevent and treat the coronavirus disease.

Discussion

The coronavirus disease spread Preventive measures were the only sole existing strategy to limit the spread of

COVID 19 infection in 2020 because of no substantiated treatment protocols and vaccine when the study was conducted.[6, 10]. In the current study we found that almost all the participants had some kind of misconceptions regarding spread of coronavirus disease. We explored the perceptions general people towards the myths and facts of spread of COVID 19. During the initial days of lockdown in 2020, it was required to sensitize the people about COVID 19 myth busters as recommended by WHO.

"Myth" is a generic term for popular beliefs, which have been proven over time to be invalid. .[6,11]. Our study identified important myths that had spread in first six months of coronavirus disease outbreak. It was observed that 97.8% of the population had myths about COVID 19. Even though the participants were aware of treatment for coronavirus disease and role of immune system in getting recovered from the infection, they had poor knowledge regarding its transmission. Results of our study were similar to those obtained by Goruntla Narayana[12] and Reddy P[6] This may be because the people residing in rural areas are less aware about authentic websites like WHO, Ministry of Health and Family Welfare of India and believe more on the information which is being spread through social media or by word of mouth. Most of the myths were related to eating non-vegetarian food, spread of COVID 19 at higher temperature. About 55% participants believed that the coronavirus disease would spread in temperature above 25 degrees while about 19% participants were not sure whether the infection spreads above 25 degrees. Eating nonvegetarian food causes COVID 19 was believed by 63% participants. The reason behind this may be that in the initial few months there was no evidence regarding causative factor of coronavirus disease as well as its transmission, besides there were more misconceptions that circulated either by social media, or by word of mouth. In our study social media and television and print media were found to be the chief source of misconceptions followed by other sources for ex. word of mouth. These findings were in consenus with the study done by ,Zhong et al[13], Narayana G et al,[12]. Similar to our study, Baig M et al [14] in their study amongst Saudi population also found that social media was the leading source of information about COVID 19 and same was found by study conducted amongst Australian population.[15] Meier et al. also reported that television, newspapers, official health websites, and social media were the most frequently used information sources.[16]. Similar to our study, few other studies also reported misconceptions about transmission of coronavirus disease. [17,18]

There is a need to deliver more awareness activities and messages through all possible means (Telecommunication /advertisements / distributing pamphlets/ holding public webinars etc.) to counter the emerging myths. More stringent actions to be taken by the Judiciary system to control the spread of myths/fake claims. Rural populations should be made aware that they should always follow authentic websites such as WHO website, CDC website or Ministry of Health and Family Welfare website of India (mohfw.in) to gain knowledge and stay updated regarding COVID-19. The public should be made aware of questioning the authenticity or level of evidence of a publicized treatment or strategy being circulated or advocated by any person or group of persons before believing any fact blindly. Further, awareness should be raised to follow the evidence-based preventive measures such as hand hygiene, social distancing, and infection control measures to safeguard against getting infected.

Strengths and Limitations

The major strengths of this study were high response rate was obtained , and the questionnaire being developed in

the local language made it easy for participants to mark their responses besides we were able to access the people in remote areas. Our study had some limitations the convenient sampling technique may not avoid the subjective selection bias and would diminish the internal validity. Secondly, it is possible that respondents might have looked up the answers online or they might have randomly marked some responses to save time.

Conclusion

Majority of the participants had myths regarding COVID 19 in this study. The findings of this study suggest that there is a need to make public more aware and educated regarding transmission of COVID 19 disease. The proper and planned educational program based on the WHO myth busters will help change public's view from following unacceptable myths.

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Legend Tables

Table.1 Knowledge questions regarding transmission of COVID 19

Questions		Yes	No	Don't know	P value
Q1.Are you aware of modes of transmission of corona virus?	Number (%)	217(81%)	32(11.9)	19(7.1)	0.000
Q2.Do you know that strong immune system has a role in getting recovered from coronavirus ?	Number (%)	171(63.8)	36 (13.4)	61(22.8)	0.000
Q3.Do you think, a person suffering from COVID-19 can recover?	Number (%)	227(84.7)	13(4.9)	28(10.4)	0.000
Q4.Do you think antibiotics will help prevent and treatment of new coronavirus?	Number (%)	168(62.7)	38(14.2)	62(23.1)	0.000

Table 2: Myths and misconceptions for the spread of COVID 19

Question		Yes	no	Don't know	P value
Q5.Does COVID-19 spread at higher temperature (above 25degrees)?	Number (%)	149(55.6)	68(25.4)	51(19%)	0.000
Q6.Does cold weather kills the corona virus?	Number (%)	70 (26.1)	167 (62.30)	31 (11.6)	0.000
Q7.Can eating garlic help prevent infection with the new coronavirus?	Number (%)	92 (34.3)	84 (31.3)	92 (34.3)	0.788
Q8.Does corona virus gets transmitted through mosquito bite?	Number (%)	45 (16.8)	166 (61.9)	57 (21.3)	0.000
Q9.Does drinking Masala tea prevents me from	Number (%)	127 (47.4)	97 (36.2)	44 (16.4)	0.000

contracting COVID 19?					
Q10.Does eating non- vegetarian food like chicken, mutton, fish etc. cause COVID-19?	Number (%)	170 (63.4)	72 (26.9)	26 (9.7)	0.000
Q11.Do you think breathing exercises like holding breath for few seconds will help you to diagnose COVID-19?	Number (%)	76 (28.4)	96 (35.8)	96 (35.8)	0.225
Q12.Do you think drinking alcohol will protect you from COVID-19 disease?	Number (%)	124 (46.3)	141 (52.6)	3 (1.1)	0.000
Q13.Does taking a hot water bath prevents the spread of new corona virus disease?	Number (%)	77 (28.7)	82 (30.6)	109 (40.7)	0.000
Q14.Do you think spraying alcohol or chlorine all over the body will kill the corona virus?	Number (%)	77 (28.7)	82 (30.6)	109 (40.7)	0.000
Q15.Are hand Dryers effective in killing the virus of COVID-19?	Number (%)	97 (36.2)	52 (19.4)	119 (44.4)	0.000
Q16.Can regularly rinsing your nose with saline water will help to prevent the infection with new coronavirus??	Number (%)	103 (38.4)	75 (28)	90 (33.6)	0.111