Analysis of change in knowledge, attitude, and practices about COVID-19 following and awareness session in rural population of Western India

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Background: Beginning of the pandemic showed our limitations in our understanding of the spread of the dreaded coronavirus-19 that had sprung from China and spread through thick and thin across the world. The measures to contain the spread of virus in the absence of specific treatment protocol had everyone grope for the solutions in a very short time frame. One such is the knowledge, attitude, and practice in the rural setup. Aim: The aim of the study is to measure the change in knowledge, attitude, and practices (KAP) regarding COVID-19 following an awareness session in rural population. Materials and Methods: A cross-section interventional study was carried out in January 2021. An interactive awareness session was conducted with the help of audiovisual aids following MOHFW guidelines for COVID-19, and the change in KAP about COVID-19 was measured by pre- and posttest standardized questionnaire. Results: Of all the participants, statistically significant change in knowledge was seen from 43% to 52%. The villagers were educated about preventive steps and a positive change was measured in the practice of changing masks regularly (84%–100%), maintaining social distancing (44%–64%), frequent handwashing (52%–64%). No change was seen in wearing of masks (92%) and negative change was seen in avoiding handshakes (32%–28%). The preventive practices regarding COVID-19 pandemic changed significantly from 50% to 58%. Our study measured positive attitude change toward getting vaccinated from 64% to 72%. Conclusion: A single, short awareness session led to significant change in KAP about COVID-19 in rural population.

Keywords: Attitude, awareness, COVID-19, knowledge, practices, rural population, vaccination

COVID-19 is primarily a disease of respiratory tract. The viral disease which had origins in Wuhan, China, was first detected in an Indian state of Kerala, in early 2020.[1] This disease spreads globally over a period of 3–4 months. COVID-19 was renamed as SARS-COV-2 by the WHO and declared pandemic in March 2020.[2] At the beginning of the pandemic in the absence of specific treatment, the most significant way to curb the pandemic was to follow certain well-rehearsed social etiquettes such as personal hygiene techniques and public health behavior (social distancing, wearing of mask, and handwashing using sanitizers). In far-flung and rural areas, it was difficult to convey this message of public health behavior and thus in the villages sustained ban on large gatherings was difficult, making it difficult to contain the coronavirus.[2-3] A majority of Indians live in the rural areas and they might not have access to the internet connectivity as well as the urban population has to gather information about public health in a pandemic situation.

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Hence, curbing the spread is more difficult in the rural areas. Knowledge, attitude, and practice (KAP) studies are important as they reflect how the people perceive information which is dispensed to them and the underlying myths about the same. With the vaccination drive beginning in India in early 2021, the attitude and the dispersion of correct information became absolutely necessary especially in the rural areas where they hardly have access to correct information about such topics. The majority of the studies (with respect to preventive measures being followed by the general public and beliefs toward the vaccination) have taken place in the urban region about KAP mainly through online surveys. This study targets the rural population with the goal of educating them and in turn helps us assess the knowledge gained by the same by using pre- and posttest questionnaire.

MATERIALS AND METHODS

This was a cross-section intervention study with an analytical approach. The study was approved by institutional ethical committee.

Study setting
COVID-19 awareness and health check-up camp organized at community hall of interior village of central Gujarat with a population of around 200 villagers.

Study sample
Twenty-five villagers.

Inclusion criteria
All the villagers above the age of 18 years.

Exclusion criteria
Villagers aged <18 years or those who did not give consent for either session or questionnaire or both were excluded.

Study tools
Sociodemographic questionnaire
This included the basic sociodemographic data of each participant, namely age, gender, education, and occupation.

Semi-structured questionnaire
Semi-structured questionnaire (adapted from the WHO training module). This questionnaire was developed and standardized in the vernacular language (Gujarati).

Knowledge assessment
It was done by 9 questions for knowledge with 1 mark given based on the correct answer marked amounting to 18 marks for knowledge of the symptoms, mode of spread, high-risk patients, and steps for prevention of COVID-19. Out of these 9 questions, 2 questions had multiple correct answers while other 7 were yes, no, and don’t know type.

Attitude assessment
The attitude was assessed in the same way; it consisted of 3 questions for attitude toward vaccination and preventive steps for COVID-19.

Practices assessment
The practices were assessed using 3 questions regarding the practices done by them to prevent COVID-19, correct use of masks, and symptoms of COVID-19. Out of the 3, 1 was multiple choice answer and 2 were yes, no and don’t know type.

The same multiple-choice questionnaire was given as pre- and posttest to know the change in KAP in the minds of villagers.

Procedure
The main purpose of the camp was to provide awareness regarding COVID-19. This study took place after prior permission had been taken from Sarpanch, School Principal and the respective hospital authorities. The information about the camp was spread by local authorities and volunteers of village by word of mouth by school-going students and volunteers from hospital. All the participants were checked for temperature, pulse, blood pressure, and SpO2 along with a history of COVID-19. Later, they were explained about the procedure and oral consent was taken. Then, the villagers were assigned the semi-structured questionnaire. Pretest assessment was filled up by all the villagers who could read and write in Gujarati. Those who had any doubts were helped out by members of the research team. This was followed by an intervention.

Intervention
There was an audiovisual session conducted on January 06, 2021, especially designed for the villagers in Gujarati and Hindi. The presentation was made with the guidance from the presentations made by the government of Gujarat and the videos in both Hindi and Gujarati (about handwashing, social distancing, and basic information about COVID-19), the session lasted for 45 min each, 2 such sessions were held so as to follow the protocols of Ministry of Health and Family Welfare. The villagers who had any difficulties during the session or while answering the questionnaire were answered adequately and myths regarding COVID-19 were cleared by the research members. Finally, posttest questionnaire was filled up by the villagers for recording the change in KAP.

Statistical analysis
Frequencies, standard deviation, mean, percentages, and descriptive analysis have been used for calculation of the results of this study in MS Excel.
RESULTS

Table 1 shows the sociodemographic data of the participants. The mean change in knowledge of the participants was from 7.8 (range: 3–14) to 9.2 (range: 5–16) score which was statistically significant ($P = 0.01$). Table 2 shows the change in the knowledge after an intervention. Attitude changes are shown in Table 3. Table 4 shows the change in common practices used by the villagers to prevent the spread of COVID-19.

DISCUSSION

In our study, we found statistically significant change in knowledge score. Most of the studies related to KAP related to COVID-19 were cross-sectional type, so the data related to interventional studies is scarce. As compared to a study from Saudi Arabia, close contact with infected person was marked by 50.62% and shaking of hands with COVID-19 patient was marked by 98.08%, while in our study, 44% marked the same followed by 48% in the second category. One of the major reasons for this finding may be that the population studied usually greets each other by folded hands from a distance (Namaskar) and this may be the major reason for this finding in our study.

Spread of COVID-19 from an earlier study showed that coughing (69.1%), sneezing (69.5%), and shaking hands with infected patients (59.1%) were the main reasons for the cause of COVID-19 as compared to 52%, 36%, and 16%, respectively, in the pretest and 56%, 68%, and 48%, respectively, posttest. These findings are almost comparable to the earlier Indian study. A study in Egypt showed that 86.4% of the population knew that breathlessness and cough were symptoms of COVID-19 while 97.7% knew that fever was symptom of COVID-19 as compared to 52%, 72%, and 40% population, respectively, in our study during pretest. A study among diabetic patients showed that 59.4% of the population felt that symptomatic patients only spread COVID-19 as compared to 72% in our study.

In a study from Maharashtra, 27.3% believed that all patients who have COVID-19 are critical while 97.54% and 73.3% believed that it is more serious in elderly or in people with comorbidities and pregnant females as compared to 32% believing that all who have contracted COVID are critical while 60% and 72% believed that COVID-19 is more serious in elderly people or people with comorbidities and pregnant females, respectively. An earlier Indian study found that 37% used techniques such as drinking lemon juice and gargling with salt water as compared to 68% who used such preventive techniques in our study. In a Chinese study, 91.4% subjects believed that wild animals do not spread COVID-19 as compared to our study where 84% of the population thought that domesticated animals do not spread the virus. Regarding attitude of villagers toward the prevention of COVID-19, 72% study population agreed that they should avoid going to crowded places as compared to 89% in study from Bangladesh. In our study, 72% population agreed to take vaccine after session, wherein an increase of 8% was noted and became comparable to 79% population from the urban slum dwellers of Mumbai. The practices regarding wearing of masks were followed by 92%, 52% population during pretest and 64% population during posttest were used to frequent washing of hands, while 44% population during pretest and 64% population during posttest used to practice social distancing techniques as compared to a study in rural population of Uttar Pradesh state, where the number of persons practicing wearing of masks were 77%, frequent handwashing were 74%, and following social distancing norms were 72%. These numbers were also compared with the rural population of Pakistan where 65% avoided handshakes, and 54.7% used frequent handwashing techniques. In another study from Jammu and Kashmir, 73.38% people were wearing masks and 86.6% followed social distancing. While in a Jordanian study, a majority of 98% covered their mouths while sneezing or coughing as compared to 52% in our study. Furthermore, on comparison with a Chinese study, 78.6% of the population visited the hospital if they had complains of cough, cold, and fever as compared to 76% in our study.

Table 1: Sociodemographic data of the study population

| Sociodemographic data | Number of villagers, n (%) |
|-----------------------|----------------------------|
| Gender                |                            |
| Male                  | 6 (24)                     |
| Female                | 19 (76)                    |
| Age                   |                            |
| 18-30                 | 11 (44)                    |
| 31-45                 | 7 (28)                     |
| 46-60                 | 3 (12)                     |
| 61-75                 | 3 (12)                     |
| 76 and above          | 1 (4)                      |
| Education             |                            |
| Illiterate            | 7 (28)                     |
| Primary (1-7)         | 7 (28)                     |
| Secondary (8-10)      | 8 (32)                     |
| Higher secondary (11-12) | 2 (8)                   |
| Graduate              | 1 (4)                      |
| Family                |                            |
| Joint                 | 23 (84)                    |
| Nuclear               | 2 (8)                      |
of our population agreed that they change masks when wet or after 8 h as compared to 65% in an Italian study.\textsuperscript{[19]} The main reasons for a decrease level of knowledge in few questions in our study could be the lack of formal education (here, the mean schooling is 5th standard). Being an interior rural village, there was a lack of access to different modes of communication, and also, the study village had not reported positive cases of COVID-19 till the time the study was conducted.

**Limitations**
The awareness session was conducted in a single village, and the limited sample size was major drawbacks of the study so we cannot generalize to the entire population.

**Future directions**
The study could be replicated on a larger scale including multiple villages so as to make them aware about the pandemic and in turn prevent the aftermaths of the same.
Table 3: Attitude changes in the study population regarding COVID-19

| Attitude change                                                                 | Yes, n (%) | No, n (%) | Don't know, n (%) |
|---------------------------------------------------------------------------------|------------|-----------|-------------------|
| A1 Do you think we should avoid going to crowded places?                         |            |           |                   |
| Pretest                                                                         | 18 (72)    | 6 (24)    | 1 (4)             |
| Post                                                                            | 18 (72)    | 7 (28)    | 0                 |
| A2 Do you think vaccination is an effective tool for control of COVID-19?        |            |           |                   |
| Pretest                                                                         | 11 (44)    | 11 (44)   | 3 (12)            |
| Post                                                                            | 21 (84)    | 3 (12)    | 1 (4)             |
| A3 If in future someone asks you to take COVID-19 vaccine, would you agree to take the same? | | | |
| Pretest                                                                         | 16 (64)    | 4 (16)    | 5 (20)            |
| Post                                                                            | 18 (72)    | 5 (20)    | 2 (8)             |

Table 4: Impact of study intervention on Practice changes regarding COVID-19

| Practice change                                                                 | n (%)      |
|---------------------------------------------------------------------------------|------------|
| P1 What precautions do you take while going out of home?                         |            |
| Wear masks                                                                      |            |
| Pretest                                                                         | 23 (92)    |
| Post                                                                            | 23 (92)    |
| Social distancing                                                               |            |
| Pretest                                                                         | 11 (44)    |
| Post                                                                            | 16 (64)    |
| Avoid hand shakes                                                               |            |
| Pretest                                                                         | 8 (32)     |
| Post                                                                            | 7 (28)     |
| Frequent handwashing                                                            |            |
| Pretest                                                                         | 13 (52)    |
| Post                                                                            | 16 (64)    |
| Avoid spitting in public places                                                 |            |
| Pretest                                                                         | 7 (28)     |
| Post                                                                            | 9 (36)     |
| Covering mouth with handkerchief while coughing or sneezing                    |            |
| Pretest                                                                         | 8 (32)     |
| Post                                                                            | 13 (52)    |

The outcome for more readiness to get vaccinated can be a game changer in curbing the pandemic.

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CONCLUSION

Our single audiovisual intervention proved to be of statistical significance in changing the villagers’ knowledge and practices regarding COVID-19. The intervention also proved to be helpful in changing attitude toward vaccination in the villagers and shows their readiness to take vaccine.

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Nil.

Conflicts of interest
There are no conflicts of interest.

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