

Community practices in COVID-19 outbreak in rural Ballabgarh, Haryana – A mixed methods study

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ABSTRACT

Background: More than 43 million cases and 5.2 lakhs death have occurred due to COVID-19 in India. Approximately 1 lakh people (cumulative) have been infected by COVID-19 in Faridabad district alone as of 4 April 2022. To understand the effects of COVID-19 on community practices this study was conducted. **Methods:** A community-based cross-sectional study was conducted in Intensive Field Practice Area of Comprehensive Rural health Services Project (CRHSP), Ballabgarh, Haryana. Five hundred participants (≥ 18 years) were selected by using simple random sampling from Health Management Information System (HMIS) maintained at Centre for Community Medicine, AIIMS, New Delhi. Participants were informed regarding study and consent was taken. A semi-structured interview schedule was administered. **Results:** Study participants included 500 adults (52.2% Male). Mean age (S.D.) of participants were 39.1 (14.9) years. Almost all participants started practicing hand sanitisation (496, 99.2%), avoiding crowd (488, 97.6%), and covering face with cloth/handkerchief (459, 91.8%). More than 80% (428, 85.6%) started using mask, and following cough etiquettes (405, 81.0%). More than three-fourth (389, 77.8%) participants were very unsatisfied with lockdown. Majority faced financial difficulties (322, 64.4%), followed by difficulty in their entertainment/recreational activity (158, 31.6%), difficulty in acquiring ration/food items (87, 17.4%) and mental stress (46, 9.2%) during lockdown. **Conclusions:** Rural community of Ballabgarh showed positive practices with respect to prevention of COVID-19. Financial distress and job loss due to lockdown were widely reported from the rural community. Majority of the community was displeased with lockdown as intervention for COVID-19.

Keywords: Community perception, community practices, COVID-19

Introduction

Coronavirus disease 2019 (COVID-19) caused by novel coronavirus (SARS-CoV-2), was first identified in Wuhan, China. COVID-19 was declared pandemic by World Health Organization (WHO) on 11 March 2020.

Pan-India Janta curfew was put on 22 March 2020. The fight against COVID-19 is still not over in India. To assure final victory, people's obedience to these control measures is indispensable,

which is chiefly affected by their knowledge, attitudes and practices (KAP) towards COVID-19, according to the KAP theory.^[1,2] Lessons learned from SARS outbreak in 2003 suggest that knowledge and attitudes towards infectious diseases are associated with level of panic emotion.^[3,4]

To facilitate outbreak management of COVID-19 in India, there is an urgent need to understand the public's awareness of COVID-19 at this critical moment.

Intensive Field Practice Area (IFPA), under Comprehensive Rural Health Service Project, Ballabgarh, Faridabad district, consists of 28 villages. And as of 2020-2021, the total population under this project was 1,04,699. Birth rate and death rate of this area was 17.4 and 5.9 per thousand, respectively. This area had sex ratio at birth of 939/1000. The literacy rate of this area was 65%.

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This study was planned to understand the community practices, community perception for COVID-19 transmission, prevention and treatment and implementation of various interventions during COVID-19 outbreak in rural community of Ballabgarh, Haryana.

Objectives:

1. To study community practices with respect to COVID-19 outbreak in rural Ballabgarh, Haryana.
2. To understand perception of community regarding COVID-19 transmission, prevention, and treatment in rural Ballabgarh, Haryana.
3. To study implementation of community based public health interventions during COVID-19 outbreak in rural community of Ballabgarh, Haryana.

Material and Methods

A mixed methods study was conducted in the Intensive Field Practice Area of Comprehensive Rural health Services Project (CRHSP), Ballabgarh, Haryana, from June 2020 till November 2020. Quantitative part of study included cross-sectional study design.

Adults aged ≥ 18 years were included in study. Sample size was calculated taking “ $p = 50\%$, $d = 5\%$, $z = 1.96$ ”, sample size was calculated as 384. Taking non-response rate as 20% final sample size was 480 which was rounded off to 500. Five hundred participants were selected randomly from pre-identified available list of adults in the study area from Health Management Information System (HMIS) maintained at Centre for Community Medicine, AIIMS, New Delhi.^[5]

All sampled adults were contacted in person at their household. Participants were informed regarding study and its objectives. Informed consent was taken. A semi-structured interview schedule was administered.

Fifteen percent of the proformas were checked randomly for quality assurance by the principal investigator.

For the qualitative part focussed group discussions (FGDs) and in-depth interviews (IDIs) were conducted. FGDs were conducted with ASHA workers. IDI were conducted with medical officers of primary health centers in the area, and sarpanches of the villages.

Ethics: Participants with COVID-19 symptoms were screened and referred for testing and treatment to B K hospital, Faridabad. Ethical approval for the study was taken from the Institutes Ethics Committee, All India Institute of Medical Sciences, New Delhi (IEC-386/08.05.2020). Identifiers were removed from the data collected, and secured with the primary investigator.

Data Analysis: Quantitative data were entered into Microsoft excel. The data were cross-checked and cleaned. Statistical

analysis was done using STATA 16 (StataCorp. 2019. Stata Statistical Software: Release 16. College Station, TX: StataCorp LP). Descriptive analysis was performed.

Qualitative data were analysed manually using thematic analysis where familiarization, coding, interpretation of the findings and summarizing major themes from findings was done. Key themes were presented with using of paraphrase and/or direct quotes to elaborate more. Health belief model (HBM) was used to categorise the findings.

Results

Quantitative results

Five hundred participants took part in the study. Mean age (S.D.) of the participants were 39.1 (14.9) years. Participant's age ranged from 18 years to 90 years. Table 1, describes the demographic characteristics of participants.

Figure 1 is depicting the knowledge regarding the symptoms and preventive measures for COVID-19. Majority of the participants identified causal agent of COVID-19 as “virus” (387, 77.4%), however almost one fourth (110, 22.0%) did not know about the causal agent. Figure 2, is depicting the knowledge regarding COVID-19 transmission among participants.

Almost half of the participants were not aware about transmission of disease by asymptomatic individuals (251, 50.2%), while almost one-third of the participants knew about it (158, 31.6%).

More than half of the participants (300, 60.0%) told nasopharyngeal swab as the sample taken for diagnosis of COVID-19. More than one-fourth of the participants were having no information regarding the what sample is taken for COVID-19 diagnosis.

Table 1: Distribution of different demographic variables among the participants

Variables (n=500)	Frequency	Percentage
Sex		
Male	261	52.2%
Female	239	47.8%
Age (in years)		
18-30	176	35.2%
31-59	267	53.4%
≥ 60	57	11.4%
Members <15 years in family		
0	149	29.8%
1	82	16.4%
2	128	25.6%
3	66	13.2%
Elderly members in family		
0	251	50.2%
1	134	26.8%
2	113	22.6%

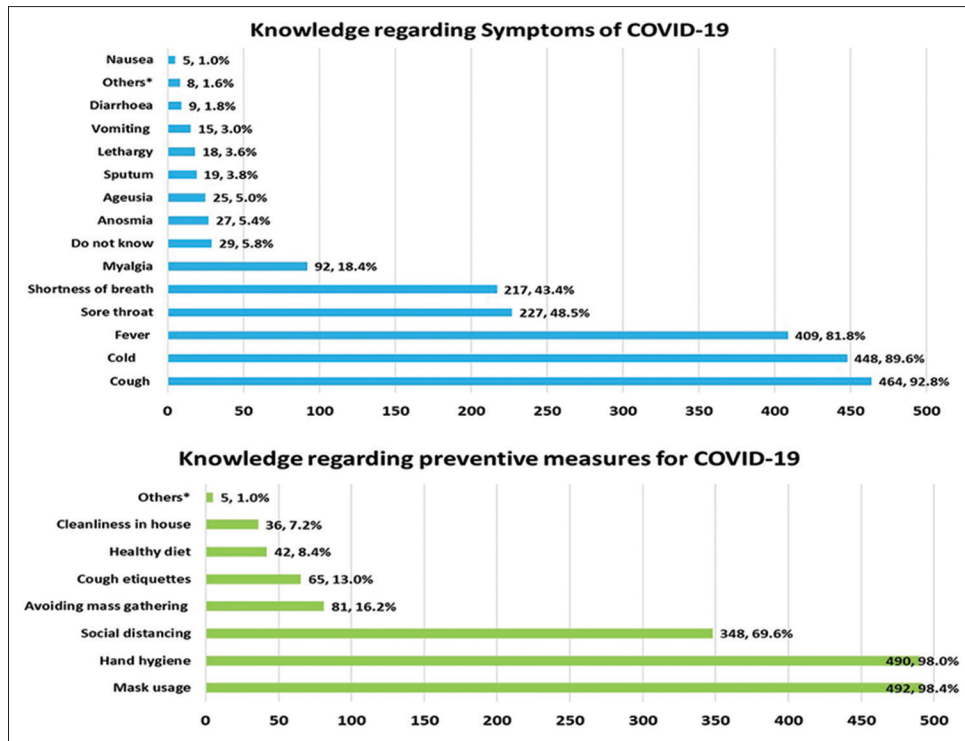


Figure 1: Knowledge of symptoms and preventive measures for COVID-19 among participants

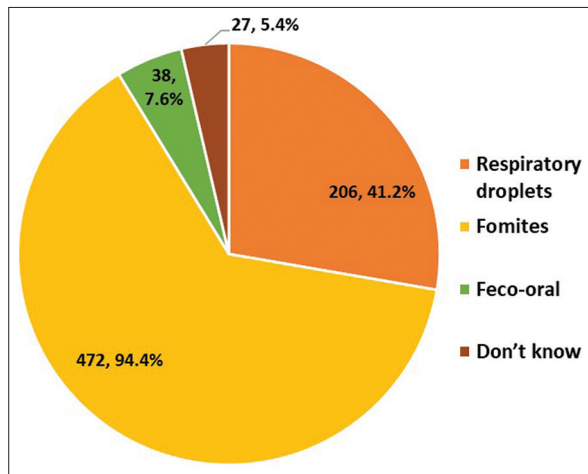


Figure 2: Pie chart depicting the knowledge regarding transmission of COVID-19

Sixty-six participants were having no knowledge about duration of quarantine for COVID-19 suspects. Mean (S.D.) days for quarantine were reported as 14.4 (3.6). The duration for quarantine told by the participants ranged from 0 to 60 days.

Similarly, eighty-five participants were having no information on isolation period duration for COVID-19 positive cases. Mean (S.D.) days for isolation reported was 15.0 (5.2) days, with range from 0 to 40 days.

Regarding the source of information for COVID-19, majority of the participants reported as television (307, 61.4%), followed

by news (262, 52.4%), mobile/internet/social-media (62, 12.4%), neighbours (46, 9.2%) and doctors/hospital/health workers/ASHA (27, 5.4%).

More than 40% of the participants (206, 41.2%) were aware about the “Arogya Setu App”, however only 118 (23.6%) had downloaded the App and using it (118, 23.6%). Two hundred eighteen participant’s (218, 43.6%) family members were using Arogya Setu App.

Regarding change in behaviour due to COVID-19 pandemic almost all (496, 99.2%) started practicing handwashing/hand sanitisation, 488 (97.6%) avoided crowd, more than 90% (459, 91.8%) started covering face with cloth/handkerchief. [Figure 3]

Majority of the participants (335, 67.0%) did not visit religious places during lockdown. While 162 (32.6%) visited religious places sometimes but with precautions.

More than three-fourth (389, 77.8%) of the participants were very unsatisfied with the lockdown for controlling COVID-19.

Almost 10% (54, 10.8%) individuals visited hospital during lockdown.

Among difficulties faced during lockdown, majority faced financial difficulties (322, 64.4%), followed by difficulty in their entertainment/recreational activity (158, 31.6%), difficulty in acquiring ration/food items (87, 17.4%), and 46 (9.2%) reported mental stress during lockdown.

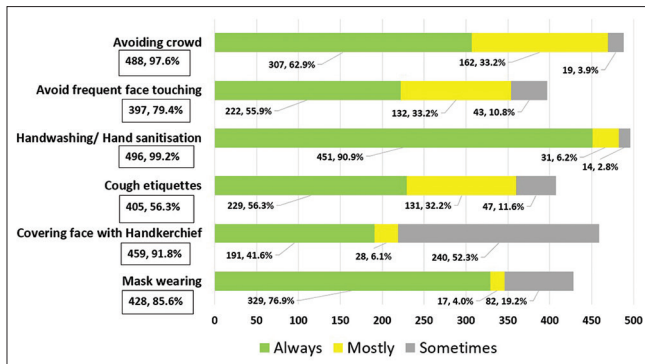


Figure 3: Community practices after COVID-19 pandemic

Majority of the participants were stressed to run the house during lockdown (very much stressed (134, 26.8%), much stressed (176, 35.2%)).

Majority of the participants reported that COVID-19 has very much changed their day-to-day life (189, 37.8%).

Almost half of the participants (227, 45.4%) reported they did not have enough savings and will be not able to run the house for more than a month if they lose their job and no additional financial assistance will be provided.

Almost all the participants reported these as their basic necessity during lockdown: food (499, 99.8%), medicine (497, 99.4%), reach to healthcare (498, 99.6%), mobile (496, 99.2%), television (499, 99.8%), radio (495, 99.0%) and contact with family (467, 93.4%). Other things reported as basic necessity were roof (388, 77.6%) and internet (297, 59.4%).

Most of the participants took help after the beginning of lockdown for finances (225, 45.0%), followed by job relating help (102, 20.4%), vulnerable individuals at home including children and elderly (41, 8.2%), medical treatment and other health-related care (36, 7.2%), mental stress/emotional disturbances (32, 6.4%), transport (25, 5.0%) and food/water (20, 4.0%).

Qualitative results

The study participants included Medical officers, ASHA workers and Sarpanch working in the selected community. FGDs and IDIs were conducted.

Findings for perception/knowledge about COVID 19 are presented in seven thematic areas, and the themes were developed and categorized after the responses of the participants. This method of category is based on the HBM which serves as a useful method of understanding participants' perception and difficulties the community had due the lockdown during this pandemic.

Awareness about COVID-19: All the participants said that they know about the COVID-19 disease and the disease is known as "Corona" in the community. They also knew that

the outbreak started from China and the disease is caused by a virus.

"COVID ko hum CORONA ke naam se jante hai. Log bhi isi naam se jante hai."

Majority of them responded that COVID-19 is spread through respiratory droplets, contacts

(fomites) and air medium.

"Khasne se CORONA failta hai"

Perceived symptoms and signs of the disease: Almost all the participants were aware of common symptoms of COVID-19. Cough, cold, fever, malaise, loss of smell, diarrhoea were the usual response given by participants. Few of them also mentioned about severe symptoms such as respiratory distress/shortness of breath. Majority of the participants were aware of asymptomatic positive cases. One of the respondents said –

"Aisa bhi hota hai ki kisi ko khansi bukhar kuch bhi nahi hai lekin test karwaya aur usme positive aa gaya. Aisa bahut logo ka hai"

Perceived severity: Participants said that, if the person is having fever, cough or similar symptoms, they should go for testing, quarantine themselves, wear a mask, and maintain social distancing. One of the ASHA workers said that –

"jaise kisi ko khansi ho gaya to usko mask pehanana chahiye, doori bana ke rakhna chahiye" *"Agar kisi ko CORONA ho jaye to usko ghar me hi rehna chahiye"*

Perceived susceptibility: Elderly persons, low immunity cold climate, travelling outside were perceived to be susceptible factors for contracting disease. Some also reported that doing exercise/ yoga and using herbal medications such as kadha, drinking hot water will increase immunity and decrease their chance of getting disease.

"Bujurgo me CORONA ka adbhik mauka hai"

Perceived benefit of testing: Most of the respondents had knowledge about testing facilities and what samples were taken for testing. Rural community was aware of the benefits of being tested, they said it will help in identifying the diseased, and thereby will help in protection of people in the communities.

"CORONA ke liye jaanch karna behtar hai, yeh prasaar kam karega aur humare parivaar ki Raksha karega"

Perceived barriers: Stigmatization and fear of getting quarantined/ isolated in government facilities were major barriers identified.

"Yedi CORONA positive paya jata hai to ve hume sarkari suvidhavo me Quarantine karenge"

People also did not inform about their sickness or symptoms due to fear of getting isolated if found COVID-19 positive.

“Ve Isolation hone ke dar ke karan apne lakshano ka Khulasa nahi karte”

Preventive measures: Majority of the participants mentioned that social distancing, wearing mask, sanitization and maintain hand hygiene could prevent from contracting COVID-19. One of the respondents said that –

“Hath dhona CORONA ke baad sabne sikh liya”

Community perception and practices: According to majority of participants, at the beginning of pandemic positives cases faced a lot of stigmatization from society. Not only patients, even the nursing staff members, frontline workers and doctors faced social out casting. One of the ASHA workers said that *“Jin marijo ko home isolation me alag rakha gaya tha, ve humare sath jhagra karte the”*

Participants said that their basic needs (ration, medicines) were not met, and worried for their livelihood. Some participants also blamed to government steps of imposing sudden lockdown.

Action taken by government: Participants enumerated various government actions such as availability of testing facility, contact tracing and ILI survey done by ASHA. Pulse oximeter, thermometer was provided to positive patients who were home isolated. Participants had mixed responses regarding satisfactions with government actions, some were completely dis-satisfied while others supported but said government could have done more to avoid unnecessary chaos during lockdown. Participants also said waste management was poor, for masks and personal protective equipment's disposed of after use.

Lockdown: Participants said that this lockdown gave government time to respond and decreased the spread of disease. But as the lockdown was not planned instead of beneficial effects it has more disadvantages.

Participants also suggested that quarantine of international traveller could have started earlier. In the beginning of pandemic as transport facility was blocked, there was shortage of supply of medicine and PPE.

Suggestions to improve: Majority of the participants said that during this pandemic other disease like NCDs, ANC and Immunization services were overlooked as all funds diverted to COVID-19 and its preparation.

Steps should be taken by government to overcome stigma and social out casting, and for providing basic necessities to migrant workers and daily wage workers.

Discussion

To the best of our knowledge, this is the first study in India examining the community practices in COVID-19; community

perception of COVID-19 transmission, prevention and treatment; implementation of various interventions during COVID-19 outbreak among Indian rural community using a mixed-methods approach.

Participants had good knowledge regarding the cause and the symptoms of COVID-19. Respiratory droplets were identified as modes of transmission by less than half of the participants. However, fomite transmission was reported by more than 90% of the participants.

This result is similar to the study by Ferdous MZ *et al.*^[6] in Bangladesh, where majority of the participants reported close contact with an infected person (93.7%) as the mode of transmission, followed by direct transmission during coughing (66.4%), and touching contaminated surfaces (61.3%).

Mean duration of quarantine reported in the present study was 14.4 days. Similar results on incubation period were reported by Zegarra *et al.*^[7] and Ferdous MZ *et al.*^[6]

Ferdous MZ *et al.*^[6] also reported following preventive measures for the COVID-19: washing hands with water and soap (93.5%), maintaining social distance (93.5%), avoid touching the eyes, nose with hands (90.4%), using a mask (87.2%), avoid contacts with infected people (84.7%), taking all family members into home quarantine (78.1%), maintaining self-quarantine (76.9%), strengthening to health care (63.6%) and creating a strong force to fight against COVID-19 (26.7%). This is similar to the results of our study.

In present study majority of the participants reported they started practicing hand washing/hand sanitisation, avoiding crowd, covering face with cloth/handkerchief, using mask, cough etiquettes, and avoiding frequent touching of face/eyes/mouth. Ilesanmi O *et al.*^[8] reported use of face masks and practice of social distancing measures were more frequently embraced among respondents compared to other COVID-19 mitigation measures, although full adherence was low, unlike present study where most participants had reported mostly/always usage of preventive measures. A web-based study conducted in Nigeria mostly stated mouth-covering while sneezing, wearing of face masks and avoidance of crowded spaces as self-reported practices among respondents.^[9]

In qualitative analysis rural community reported stigmatization of COVID-19 positive individuals and social out-casting of people with symptoms. Previous studies have shown that fear could motivate healthy behaviour among individuals especially during epidemics, but such behaviour may not be sustainable.^[10,11] Fear is not sufficient for adherence to recommended guidelines for COVID-19 due to outplay of knowledge-attitude discrepancy.^[12] This shows the need for regular sensitization of community regarding COVID-19.

We found major difficulties associated with lockdown being financial. This is similar to the study by Ilesanmi O *et al.*^[8] They

reported that COVID-19 poses hazard to economy, resulting in financial constraints and resultant hunger. Reason for these may be the increased cost of goods or due to lockdown which deprived individuals the opportunity to earn.^[12,13]

In present study in both quantitative and qualitative analysis, it was found that majority of the participants were affected by joblessness. Studies have reported decreased productivity, job losses and unprecedented economic catastrophe.^[14]

Mental stress was also reported as the reaction to COVID-19 pandemic and lockdown in present study. This is similar to the results by Atalan *et al.*,^[14] who reported stress and anxiety as psychological reactions due to the coronavirus pandemic. Other psychological reactions such as boredom, anger and loneliness have been notably identified as resultant threats during the COVID-19 pandemic.^[15] This calls for the provision of psychosocial support for individuals during the COVID-19 lockdown.

Among list of essential items reported by participants in the present study, almost all emphasized the importance of food, medicine, reach to healthcare, mobile, television, and radio. Ilesanmi O *et al.*^[8] also reported that suggestions to the government concerning COVID-19, the provision of medical supplies, and palliatives received highest recommendation among respondents.

COVID-19 pandemic and especially the lockdown had the hardest hit on the daily wage earners as suggested by most of the participants in the FGDs and IDI. Similar results were reported in studies in Nigeria where lockdown lasted for three months.^[12,13]

Tesfaw A *et al.*^[16] had reported socio-cultural, religion related and economic barriers for COVID-19 appropriate behaviour in a qualitative study conducted in Ethiopia. Unlike present study Rastogi R *et al.* identified poor community perception for susceptibility as well as poor perceived severity towards COVID-19.^[17] This could be due to lower literacy and lower awareness regarding COVID-19 in the study area compared to present study.

A study by Tomar BS *et al.*^[18] also reported good knowledge, and good COVID-19 appropriate practices in a web-based study done in India.

The current study was done in Faridabad district which had a population of approximately 29 lakhs. Till 4 April 2022, there were almost 1 lakh cumulative cases of COVID-19 and 700 deaths due to COVID-19 were reported in Faridabad.

Previous studies on perception and practices regarding COVID-19 have used electronic sources for data collection, and such results may have been biased. Our study is a community-based physical study that used a semi-structured interviewer-administered questionnaire. The sample taken in the

study was randomly taken which make them more representative of the general population. Use of mixed methods in present study also strengthen the study findings.

Conclusions

Rural community of Ballabgarh had good knowledge with respect to COVID-19, specifically in terms of the cause, symptoms, transmission, preventive strategies and testing. Participants also reported that they had suffered huge distress during COVID-19, specifically financially, and as loss of livelihood. Almost everyone in the community had changed his/her behaviour due to COVID-19 pandemic and started following cough etiquettes, social distancing, and hand hygiene. Rural community in majority had dis-satisfaction with lockdown, majorly due to loss of livelihood. Primary care physician can have important role in mitigating the mental stress caused directly or indirectly by COVID-19, and increasing adherence to COVID-19 appropriate behaviour.

Ethical approval

Ethical approval for the study was taken from the Institutes Ethics Committee, All India Institute of Medical Sciences, New Delhi (IEC-386/08.05.2020).

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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