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Original Research Article

Knowledge, perception and practices adapted during COVID-19: A qualitative study in a district in Maharashtra, India

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ABSTRACT

Background: India faced a huge burden during the COVID-19 pandemic. The health system was overwhelmed in coping with this unknown new and rapidly spreading disease. The general public was scared and relied heavily on instructions from the government on preventive and treatment strategies.
Aim: To understand perceptions about COVID-19 and the practices followed by the community to prevent disease transmission.
Materials and Methods: This study is part of a larger multi-country study conducted by the World Health Organization. In this paper, we present the findings of a qualitative study that utilized in-depth interviews and focus group discussions among men and women in rural and urban areas of one of the worst affected districts in the state of Maharashtra, India.
Findings: The community had basic knowledge about COVID-19 and they followed the preventive measures as suggested by the government health department and also used traditional practices such as herbal remedies. Media, community health workers, and social media were their major sources of information. However, some of the information received by the community was non-scientific leading to myths and misconceptions.
Conclusions: The COVID-19 pandemic was a challenging situation to both community and health system. The community was well informed about the disease, its mode of transmission, important precautions, and guidelines. People followed the instructions provided by the health workers. They also had a lot of myths and misconceptions about how the disease spreads and a few also followed traditional practices for prevention. Community health workers played a crucial role in facilitating the community's adherence to COVID-19 protocols.

1. Introduction

The Coronavirus disease - 2019 (COVID-19) is caused by the novel coronavirus 2019-CoV (SARS-CoV-2). The World Health Organization (WHO) considered it the biggest acute threat to human health and declared it the 5^{th} pandemic after the 2009 flu pandemic.[1] Globally, India was one of the worst-affected countries. A nationwide lockdown was imposed in India on March 23, 2020, initially for 21 days, and later extended to an entire country lockdown to combat the COVID-19 pandemic.[2] The pandemic highlighted the need for a multi-sectorial response, beyond the health system; requiring support from other sectors as well as the communities and the public.[3] While there has been extensive information on the health system responses,[4,5] there is a relatively limited understanding of

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community perceptions, particularly in low and middle-income countries such as India.[6–8] There are few studies in Pakistan[9] where community perceptions and attitudes during COVID-19 were explored. The community had knowledge acquired through electronic, print, and social media which have pros and cons. The early phase of the pandemic showed the importance of disseminating COVID-related information and developing positive attitudes and preventive measures.[10] There are various studies about quantitative studies on the epidemiological aspects of the disease. However, these studies are not suited to understanding the social and cultural implications in the community. A qualitative inquiry of knowledge is needed to understand the social and cultural aspects of COVID 19 in the community and the community's response to the pandemic.

2. Materials and Methods

The paper is part of multi-country initiative led by WHO, titled "Health Systems Analysis and Evaluations of the Barriers to Availability, utilization, and Readiness of Family Planning and Contraceptive Services in COVID-19 affected areas in Maharashtra, India." The larger study aimed to explore the impact of COVID-19 on family planning services. The study proposal was approved by both the WHO Ethics Committee and ICMR NIRRCH Mumbai Ethics Committee for Human Studies. The research team obtained consent from study participants in their native languages. Study tools were translated into local languages. Rapport was built with the participants before the interviews. The purpose and goal of the study were clearly explained to the participants before the study and written consent was obtained. There was no refusal from the participants and interviews were completed in a single phase. The study tools were piloted at the study site, with appropriate adjustments made. The study was conducted in two randomly selected urban and rural blocks of Thane district in Maharashtra state, one of the worst affected districts by COVID-19.[9]

The study used qualitative methods, including Focus Group Discussions (FGDs) and In-Depth Interviews (IDIs), using respective interview guides. The participants were selected purposively, based on the study's inclusion criteria (men and women of reproductive age group availing services at public health facilities). Written informed consent was obtained, and interviews were conducted face-to-face in a safe, mutually agreed environment. The interviews and FGDs were conducted by trained investigators, matched by the gender of the interviewee. The investigators were unbiased non-judgemental and neutral towards the community, focusing on the research study. IDIs were conducted one to one and FGDs were conducted by investigators and facilitated by the moderator. All interviews were recorded.

A total of 27 FGDs and 39 IDIs (9 FGDs and 13 IDs among men and 18 FGDs and 26 IDIs among women) were conducted (details attached in Annexure - 1). Data was collected until saturation was reached. Every interview was summarised at the end, to the interviewee for any corrections. The audio-recorded data was transcribed verbatim and de-identified by using ID numbers in place of names. Interviews that were not conducted in English were translated to English and back-translated to ensure there was no distortion of information during the translation. All interviews and FGDs were analyzed following the general approach of content analysis. This involved reading through the verbatim transcriptions and notes to gain an understanding of what was being expressed by the participants, noting down emerging themes and patterns in the data, and condensation of the data. The researchers decided on the unit of analysis and creation of units of meaning, which are then condensed into codes while ensuring the core meaning is not lost or distorted. Themes, codes, and sub codes were identified and a codebook was generated which was used commonly by all the sites. The coding method and progress were systematically discussed between the researchers and the project coordinator. The analysis was done using N-Vivo software1.7. The data were analyzed according to the suggested steps by Elo & Kyngäs (2008).

3. Findings

After coding qualitative data, the major themes that emerged were: (i) knowledge about COVID-19, (ii) means of transmission of COVID-19 in the community, (iii) awareness about COVID-19 care, (iv) sources of information on COVID-19, rumors and misinformation, (v) and (vi) preventive measures practiced in the community.

Majority (63.6%) of participants were aged between 26 and 35 years; with a mean age of 31(±5.2) years. Almost half of the women participants were educated up to secondary grade and only 2.6% did not receive any formal education. The majority of women were homemakers, while a few were unskilled workers. Among the men, a higher number were employed in the private sector. More than half of the participants (55%) reported their monthly income to be between USD $23- $244, while very few reported earning more than $366. The median family income was $ 178.66 and interquartile range of $ 119.11.

3.1. Knowledge about COVID-19

The community was well aware that COVID-19 is a pandemic that spreads through person-to-person contact. They recognized the importance of getting tested if they experienced symptoms such as cold, cough, fever, sore throat, shortness of breath, body pain, loss of taste and smell, headaches, muscular discomfort, difficulty

Table 1: Background character is tics of the participants

Age	Female (n=79) n (%)	Male (n=185) n (%)	Total (n=264)
≤25	36	2	38(14.3)
26-35	123(66.4)	45(56.9)	168(63.6)
36-45	26	31	57(21.5)
>45	0	1	1
Total	185	79	264

Table 2: Education (n=264)

Level of education	Male(n=79)		Female (n=185)		Total n (%)
	Urban (44)	Rural (35)	Urban (97)	Rural (88)	
Informal education	1	2	2	2	7(2.6)
Primary (1-6)/Elementary 1 (1-5 years)	7	3	6	2	18
Secondary school (6-9)	6	4	23	14	47
High school-vocational school/Secondary	20	19	46	45	130(49.2)
University/College	1	2	14	14	31
Graduate school	9	5	6	11	31
Occupation(n=264)					
Government servant	0	3	0	0	3
Homemaker	0	0	79	81	160 (60.06)
Private Employee	15	10	2	3	30 (11.3)
Professionals	7	2	2	2	13
Self employed	9	9	3	0	21
Skilled worker	2	8	0	2	12
Unskilled worker	11	3	11	0	25
Monthly Income in $ (n=264)					
	Male(n=79)n (%)		Female (n=185)n (%)		
Income in $	**Urban (44)**	**Rural (35)**	**Urban (97)**	**Rural (88)**	**Total n (%)**
<122	10	8(21.8)	23(23.7)	30(34.09)	71 (26.8)
123-244	25(56.81)	20(56.2)	65(67.01)	35(39.7)	145(54.9)
245-365	7(15.90)	5(15.62)	8(8.24)	14(15.9)	34(13.02)
>366	2(4.54)	2(6.25)	1(3.12)	9(10.2)	14(5.36)
Smoking (n=264)					
No	36(81.81)	26(74.28)	80(82.47)	79 (89.7)	221 (83.7)
Living with someone who smokes	0(0.0)	1(2.85)	17(17.52)	9 (10.2)	27 (10.2)
Yes, smoking	8(18.18)	8(22.85)	0(0.0)	0	16(6.06)

swallowing, joint pain, chest pain, dysentery, and dizziness.

Most participants were cognizant of the necessity to undergo testing upon exhibiting symptoms, as untreated cases could result in further transmission. However, some participants were apprehensive about being admitted to isolation wards. Thus, some opted for home remedies as protective measures. In fear of visiting hospitals, some sought telephonic consultation from healthcare providers or consulted relatives or friends in the health sector rather than visiting hospitals in person. Additionally, some participants reported that they chose to self-test using kits available in the market.

"Yeah, I was aware; I had watched a video on YouTube, and from that, I came to know about it. It was an advertisement by a Bollywood actor" (Women, FGD, rural)

3.2. Awareness about the spread of infection

The most frequently used terms to describe modes of transmission were 'airborne,' 'close contact,' and 'sexual contact.' Majority of study participants, both men and women, were aware that COVID-19 is an infectious disease that spreads through actions like coughing and sneezing. The majority of women and men perceived COVID-19 as an airborne disease transmitted through coughing and sneezing and close contact, such as shaking hands or touching surfaces previously handled by infected individuals. A few women from rural areas mentioned the potential for

transmission through bats and birds and emphasized the risk of contracting the virus in crowded places without protective measures.

However, both rural and urban men and women were uncertain whether COVID-19 could be transmitted through sexual contact. Only a very few women explicitly stated that it can be transmitted through sexual contact, while the rest expressed uncertainty, though they believed transmission could occur if one partner was infected. In comparison to women, men demonstrated greater awareness that COVID-19 is not primarily transmitted sexually. Instead, they understood that close contact with an infected partner increases the risk of contracting the virus.

"COVID is a virus; it enters our body through breath; our lungs get affected because of it; and we suffer from fever, cough, and breathlessness. Our lungs are damaged. The oxygen level in the body is reduced, and there are chances that the person might die" (male, FGD, rural).

"COVID is an infectious disease; it spreads from one person to another. We should use masks and sanitisers for safety, maintain cleanliness at home, and maintain hygiene. We got the information through different communication channels such as TV, radio, or WhatsApp messages (Prasaar Madhyam)." (male, FGD, urban)

"COVID spreads through contact with an infected person, coughing, and air. It easily gets spread in crowded places." (IDI, women, urban)

"COVID can spread through sexual relationships. If I'm infected by COVID, then a person coming into contact with me means my wife, if she keeps relationships, can get COVID" (IDI, male, urban)

3.3. Awareness about Covid19 care

The participants expressed their views about the preferred type of facility for care and treatment. Few participants mentioned following home remedies as curative care to avoid the visit to the facility due to fear of getting infected. It is also observed that few participants took basic treatment and consultation from the health care providers (ASHAs) for COVID-19 symptoms. Participants also mentioned the seriousness and necessity of treatment for COVID.

In IDIs, around 14 women in urban (9) and rural (5) knew about the availability of COVID-19 centers. However, among them, one woman from rural said that she was not aware that a specific health facility was for COVID patients. Few women also knew home quarantine in case of mild symptoms. However, very few knew about isolation care. Around 7 women both from urban and rural from urban responded that in case of having COVID symptoms, they should go to the hospital and get themselves tested. One woman from rural knew that PHC had started COVID testing. One woman from rural and urban both mentioned consulting ASHA for treatment. One woman from an urban area preferred going to the family doctor in case if contracted with COVID disease. Another woman from urban mentioned that based on financial status one can decide about availing type of facility. Only one woman from a rural believed in trying for self-care at home and then going for medical care.

All FGD participants were aware of the COVID care and the one who has the symptoms has to get tested. Lack of treatment can lead to transmission from one individual to another. However some participants in the study expressed their fear of getting admitted to the isolation wards. So, some choose home remedies. In some cases, they took the advice of the health care providers in their area or any relatives who work in the health sector. Some had chosen to test at home through the kit available in the market. Through TV and social media even in rural areas of the study, the participants were aware of these home-based testing facilities. But they choose hospital-based and home-based treatment depending on their different concerns and fear.

"I followed home remedies like consuming kadha (decoction), hot water, and taking all the necessary precautions". (Women FGD, rural)

"One must go to municipality hospital those who have money they go to private hospital those who don't have money for testing and treatment how they will go to private hospital" (Women IDI-Urban)

"My mother-in-law had a cough and cold and she came positive after the test so she was admitted to the COVID centre at Kopar Khairane for 10 days. They provided food and all necessary things to the patient." (Women FGD, Urban)

"Yeah, I was aware, I had watched a video on YouTube, and from that, I came to know about it. It was an advertisement by Akshay Kumar (Bollywood actor) (Laughs)" (Women FGD, rural)

3.4. Sources of information on COVID-19, rumours, misinformation

Participants reported that the primary sources of COVID-19 information were mainly radio and television, social media, the internet, interactions with friends and neighbours, and guidance from healthcare providers. Individuals residing in rural areas additionally accessed crucial COVID-19 information from members of the local self-government institutes, while women in rural settings emphasized the role of community health workers such as ASHA workers in delivering information. Some participants mentioned that ASHA workers established social media platforms such as WhatsApp groups to disseminate accurate and reliable information. To ensure the credibility of information found on social media, rural participants often cross-checked with health workers, friends, and neighbours.

A few participants also shared that they browsed government e-portals and applications like the 'Arogya Setu

App. They added that information was also received through caller tunes. Most of the men and women in rural areas highlighted their interactions with local self-government for information regarding COVID 19 and the protocols that needed to be followed.

ASHA workers emerged as a prominent source of information within the community, with several women highlighting their involvement in sharing COVID-related knowledge. ASHA workers played a vital role by delivering insights on community spread, preventive measures, hygiene practices, and steps to take in case of a COVID-positive case. Many women reported that ASHA workers distributed masks and sanitizers during their routine house visits and special COVID survey visits. These visits also included the distribution of some white tablets (community was not fully aware of these tablet) to be taken once a day as a preventive measure. Additionally, some women shared their experiences of meetings conducted by ASHA workers, which served as platforms for sharing COVID-related information.

Participants also reported encountering misleading and confusing information within the community. The community was suspicious of the information that was spread through various social media channels. The inconsistency of information received from various sources made it challenging for them to trust any single source for information. Thus, they depended on multiple sources and counter-checked facts using all available sources. Most trusted the information shared by community health workers or individuals with knowledge of health-related issues.

“I heard that to avoid being infected by covid we should worship god, offer food to God and should give jewellery and sarees to the mother-in-law”. (IDI women urban)

“People assumed that they will get infected because of chicken but actually it was not true.” (Rural FGD Male)

3.5. Preventive measures practiced in the community

Participants had a good understanding of the COVID-19 pandemic, and thus they followed various preventive measures to stay safe from COVID-19 infections. These practices have been presented as four sub-themes: Personal hygiene and cleanliness at home, religious practices, dietary practices and social distancing.

3.6. Personal hygiene and cleanliness at home

Personal hygiene and cleanliness emerged as pivotal preventive measures. Participants reported taking baths upon returning from outside to reduce the risk of infection, recognizing that interactions with others and exposure to the environment increased susceptibility to COVID infection. Urban participants highlighted their daily intake of Vitamin-C tablets, and some mentioned using homoeopathy pills to boost their immunity. During the COVID period, women within households implemented extra precautions to prevent infection. They prioritized maintaining cleanliness in their homes and surroundings. Clothes worn outside, particularly after hospital visits were washed separately. An important practice was placing vegetables outside for around 10 to 15 minutes and thoroughly washing them before use and items brought from outside were routinely sanitized.

3.7. Religious practices

Some participants shared that they offered special prayers to protect themselves from COVID. Some women said that they saw people offering sweets and other items to GOD to save from COVID.

"It was said to do Pooja and some women gathered at a spot and offered ladoos (sweets) to avoid corona (women, FGD, rural).

"It was told to light 7 lamps (Deepak), switch off the lights in the house and light 5 lamps on the roofs (Chat), play plates (Thali bajao), and chant "Sita Ram Sita Ram” (women, FGD, rural).

"I heard that to avoid being infected by COVID, we should worship God, offer food to God, and give jewellery and sarees to the mother-in-law." (IDI women urban)

3.8. Dietary practices

There were lots of changes reported in the dietary practises. One of the major changes was people used to prepare hot meals over cold foods. Most of the women reported that as precautionary measures they avoided food items that might trigger cold or cough, such as cold water, milk, or ice cream. Instead, freshly cooked, hot meals were served. Some participants reported that they avoided non vegetarian food items also as they received information that COVID infection was spreading through non vegetarian food which also resulted in a significant drop in the price of chicken in their area. Another participant stated "People assumed that they would get infected because of chicken, but actually, it was not true; COVID had spread all over, so we consumed chicken" (Male, FGD, rural).

Various warm beverages, such as black tea with ginger or clove, hot water with or without salt, hot milk with or without turmeric, and ginger-infused water, became routine choices of the community. Additionally, most of the participants reported that a locally prepared herbal decoction named "kaada" gained popularity as an immunity-boosting drink. This decoction typically composed of ingredients like clove, ginger, and black pepper, or black pepper, ginger, and basil leaves. The women participants reported that they used to buy groceries and vegetables at fixed times only and ensured sanitization whenever they returned from outside. They used to follow COVID protocol such as social distancing during those outside visits. There was an increase in the consumption of vegetables and fruits

among people to boost their health. Practically everyone had integrated some form of immunity-boosting decoction into their daily routine.

"We used to consume a powder made from a plant named Rohini (Mallotus philippensis) in water (male, FGD, rural).

"We consumed decoction prepared from black pepper and ginger, basil leaves, and decoction made from cloves, pepper, basil leaves, and ginger (women, FGD, urban).

3.9. Social distancing

The participants maintained social distancing to be safe from COVID-19 transmission. Men acknowledged maintaining distance from children and elderly parents to minimize the risk of transmission as they were going out for work-related purposes. Among rural participants, a pattern of avoidance emerged. They refrained from from going out, particularly in crowded locations such as attending festive events, religious rituals, and wedding functions to reduce their potential exposure to COVID. Social events and gatherings were avoided, and after returning home, individuals promptly took a bath. Wearing masks, practising regular hand sanitization, maintaining social distancing, and minimizing close contact were also adhered to as precautionary measures.

Overall, these practices underscored a strong emphasis on personal hygiene, cleanliness, and preventive measures taken by individuals to mitigate the risk of COVID-19 infection. One of the major works for the women in the households was to focus on maintaining personal and household hygiene, reflecting the women's roles as homemakers and their commitment to their family's well-being. Participants used available resources to prevent COVID-19.

4. Used double masks, maintained social distancing, and carried sanitiser everywhere I went"(male, IDI, rural)

"We sanitised all the things bought from the market, washed everything before use; we have even washed biscuit packets, dried them in the sunlight, and then used them" (women, FGD, rural).

"We were not going to the neighbouring houses, not interacting with neighbours, as it was said that COVID spreads through breath (women, FGD, rural).

5. Discussion

Several studies conducted after the COVID-19 pandemic[11–16] have examined the community attitudes, knowledge and fear regarding COVID -19, whereas in this qualitative study we sought to explore accurate information and misinformation, as well as myths regarding COVID-19 pandemic within the community. It also explored the practices adopted by the community to prevent infection, many of which were influenced by misconceptions circulating within the community. The findings highlight that the community had good access to reliable resources for obtaining correct information about how COVID-19 infection is caused and spreads. The insights from the qualitative study are valuable in acknowledging that while the community was receptive to the awareness generated through various media channels, they also followed their own preventive practices, which many a times came from the traditional beliefs and practices. Similar to how HIV awareness campaigns have successfully reduced stigma and discrimination by educating people about its modes of transmission, this strategy can inform the public about how COVID-19 is transmitted, thereby reducing misinformation and fear.[17]

Our findings, in general indicate that community had certain level of knowledge and awareness on COVID -19. This was similar to findings reported from other settings as well.[18] Most were aware of symptoms and mode of transmission of infection. Majority received the information from community health workers. In our study, majority of participants recognized the significance of community health workers, in contrast to another study[18] conducted in Mumbai, where participants in slum areas did not have access to the services of community health workers. The qualitative study[19] on people's behaviour towards health professionals showed that the community health workers had adopted different strategies such as door to door visit, wall painting, poster display and awareness through mike system to build awareness in the community. The quotes received during our study clearly highlighted the challenges of accessing health care providers in rural area. Availability of teleconsultation to enquire about the details of disease talks well about the way care was provided by the overburdened health system.

Earlier studies on COVID-19 have reported that social media channels, such as WhatsApp groups, played a significant role in disseminating information.[8,20,21] Many forwarded messages also generated myths misconceptions and fear among communities.[18] In our study, despite reports of information overload, none of the participants mentioned that it aggravated the situation, leading to increased panic among people, as observed in some other studies.[18–20] One of the studies[10] had highlighted COVID 19 as a pandemic of social media. This highlights the role that government and authorised agencies can proactively play in dispelling all these false messaging that spreads pretty fast through social media as reported in a study[20] which emphasised that proper educational programs could help improve knowledge, perception and practices among public.

In desperate times communities sought relief by turning to religious rituals like offerings made to GOD and conducting special religious rituals. This demonstrates the perceived fear about the disease and the way communities

coped with the pandemic. Our study found that participants were consuming warm water and fruits to avoid infection which WHO (2020) tried dispelling that gargling of warm water or fruits can't kills virus. Transmission through sexual route was one concern raised by the groups during discussions. Refraining from sexual activity was the only way couples coped in the given situation.

Our study in state of Maharashtra showcased a higher degree of adherence to the recommended measures and a heightened awareness of COVID-19 compared to another study reported in Northern India,[10] where poor compliance with preventive measures was observed.

Similar to our study where people were ready to adopt the protective and preventive measures as suggested by authorities a study in Kerala[22] demonstrated that community was aware of the pandemic and observed behaviour changes through health belief model. The success of COVID-19 management depends on public adherence towards prevention and control measure which is largely affected by their knowledge, perception and practices towards the same.[18,20]

6. Conclusion

The study was conducted at the end of the pandemic and by that time the community had certain levels of awareness about situation and COVID 19 which made them adhere to preventive measures. This was attributed to the effective health education efforts facilitated by community health workers, notably ASHAs in the Indian context. These community health workers, leveraging their established connections within communities, played a vital role in disseminating accurate information and combating misinformation, thereby aiding in the adoption of preventive measures. Additionally, alongside adhering to COVID protocols such as social distancing and sanitization, communities also incorporated changes in dietary habits and personal hygiene practices. Traditional cultural practices were also observed, underscoring the importance of respecting cultural sensitivities in health communication. Along with accurate information, many misinformation, myths and confusion were also over loaded towards the community and it affected the prevention measures as well. The holistic approach, combining medical guidance with cultural understanding, checking the misinformation and spreading accurate health communication, can foster greater adherence to recommended behaviours and contribute to a more effective pandemic response.

7. Ethical Committee Approval

The study proposal was approved by both the WHO Ethics Committee and ICMR NIRRCH Mumbai Ethics Committee for Human Studies.

8. Source of Funding

WHO.

9. Conflict of Interest

None.

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