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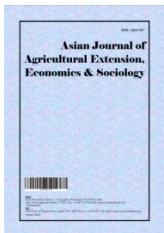
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Knowledge and Awareness Level of COVID-19 among the Farm Women and Its Impact on Agricultural Operation in Sikar District of Rajasthan

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

In India, agriculture and related industries constitute the most important source of income. Around 120 million small-scale farmers play an important role in the country's food supply system. People's knowledge, attitudes, and practices regarding any contagious disease, such as COVID-19, all play a role in determining a society's willingness to accept behavioural change strategies aimed at disease prevention. The majority of respondents (35.00 percent) are between the ages of 35 to 45, with 77 of the total respondents belonging to the OBC categories. The majority of respondents' educational levels were indicated as high school (49.17 percent). The findings of this study revealed that there was a high level of awareness, particularly among farm women, about the nature of disease, its symptoms, and the preventive actions that should be followed to prevent disease transmission. COVID-19 is a contagious disease caused by a virus, according to the majority of respondents (79.17%), and respiratory droplets are the virus's primary method of transmission, according to 75.00 percent of respondents. Farmers should bring their own food and water from home to their agricultural field, as well as soap and water, according to all of the respondents (81.67 percent). Besides, 73.34 percent of respondents believe that wearing a mask and maintaining social distance are necessary during agricultural tasks. COVID- 19 has also had an impact on agriculture. Farm women faced many constraints during this period. Out of which it is difficult to get agricultural inputs, animal feed and vaccines, lack of outside traders for product procurement, lack of technical experts to fix the problem in time, ignorance about government programs during the lockdown.

Keywords: Agriculture; COVID-19; farm women; impact; World Health Organization.

1. INTRODUCTION

At the end of the year, the corona virus disease 2019 (COVID-19) was discovered in Wuhan, China. Since then, it has spread throughout the world, prompting the WHO to designate it a public health emergency of international concern (PHEIC) on January 30, 2020, and a pandemic on March 11, 2020 [1]. The first case of COVID-19 in India was discovered on January 30, 2020, and it was originated from China. The number of cases has continuously increased, and it now has the highest cases among Asian countries, as well as third in the globe. The virus can transmit both biotic and abiotic components. Colds, coughs, colds, discomfort and weakness are some of the most common syndromes of Covid-19. Covid-19 disease is spreading rapidly around the world. Almost every country in the world is infected with this destructive virus. The United States, Russia, the UK, Brazil, Spain and Italy have been listed in the top 10 countries most affected by the Corona virus (The Indian Express, June 30, 2020). To control the spread of disease, Indian Prime Minister declared a nationwide lockdown for 21 days, beginning at midnight on March 24th and lasting until May 3rd, 2020. Mr Modi reportedly announced that the ban would apply to "all district, all routes, all villages," and warned that if you can't manage these 21 days, the country will go back 21 years. Corona virus is also an RNA virus has a crown-like appearance when viewed under a

microscope. Four species of corona virus alpha, beta, gamma and delta. At the national level all trade and commerce activities, railways, aviation, transport and water, the tourism sector, the education sector are completely affected. In addition to its major health effects, there are significant economic losses in homes, companies, and government as well as serious health and health disruptions due to locks, procurement disruptions, and significant declines in sales [2].

The government began unlocking with varying levels of relaxations on June 1, 2020. Agriculture is the backbone of the Indian economy and a source of livelihood; as a result, the government has given approval for the operation of agricultural activities with the condition that they adhere to the COVID protocol. Farmers in Rajasthan have continued their agricultural activities during the lockdown period, following the guidelines or advisory issued by the Indian and state governments. Rajasthan farm women, like those in other parts of the country, are involved in the majority of agricultural operations. Farm women's COVID-19 knowledge, attitudes, and practices are crucial in determining a society's willingness to accept behavioural change strategies to prevent the pandemic diseases disaster. This lockdown had a significant impact on the agriculture sector, particularly in rural villages where perishable goods were handled [3,4]. The objective of this

study was to determine the level of awareness and understanding among farm women regarding the COVID 19 pandemic and the steps that should be taken to prevent the virus.

2. METHODS AND MATERIALS

To study the awareness of COVID-19 among farm women, 120 numbers of farm women were selected from 5 different villages situated at Fatehpur-Shekhwati tehsil in Sikar district of Rajasthan. The survey was conducted between June 25, 2021 to July 10, 2021. A well-designed questionnaire was created and disseminated among the participants in accordance with World Health Organization guidelines on measures to be followed from time to time. The questionnaire covered three main topics: socioeconomic background, which included age, caste, educational qualification, and household income; knowledge of COVID-19, and COVID-19-related practices. These elements involve the participant knowledge of clinical features, modes of transmission, and COVID-19 prevention methods. In this study, a constraint was defined as any condition or factor that would make it difficult or impossible to use. Each participant was given yes, no, or don't know response options to these elements. A correct response to an item received 2 points, while a wrong response received 0 points and a not sure response received 1 point. The overall score varied from 0 to 40, with a higher score indicating a greater understanding or better knowledge about COVID-19. In this study, a constraint was defined as any condition or factor that would make it difficult or impossible to use. [Methodology used according to reference 5]

3. RESULTS AND DISCUSSION

Respondents were between 20 to 60 years of age according to their socioeconomic status (Table 1), and were divided into four categories. The highest (35.00 percent) respondents were between 35 to 45 years of age. Of these, the highest 64.17 percent i.e. 77 people were from OBC category. Most respondents had completed high school (49.17 per cent). It was found that 43.33 per cent of the respondents had an annual income of Rs 2-3 lakh [5].

According to the findings (Table 2), the vast majority of participants (79.17 percent) were aware that corona virus is a contagious disease caused by a virus. It is not a contagious disease caused by a virus, according to 10.00 percent of

them, and it is unknown to 10.83 percent of them. One hundred percent of them were aware that it was first discovered in China. COVID-19 is a disease that can be spread from person to person for about 76.67 percent of people, however it is not spread from person to person for about 15.00 percent of people, and 8.33 percent of people have no idea what it is. 91.67 percent respondents not able to explained full form of COVID-19, only 8.33 percent respondents able them. The main mechanism of virus transmission is by respiratory droplets, which 75.00 percent of respondents correctly identified. Modi et al. [6] came to an almost same conclusion. COVID-19 is transmitted through respiratory droplets and direct contact with an infected individual [7]. Respiratory droplets are disseminated by sneezing, coughing, and touching contaminated surfaces, according to the majority of respondents (80.00 percent) [8]. 95.83 percent of respondents believe that cold, cough, and fever are the main symptoms of COVID-19, while 27.50 percent feel that COVID-19 patients are unable to distinguish smell. It was important to observe that 87.50 per cent responded that COVID-19 positive mother cannot breastfed her child. The majority of respondents (76.67 percent) believed that COVID-19 infection can be prevented by following group behaviours such as wearing masks, washing hands often with soap [9], and maintaining at least one meter of social distance. However, 45.83 percent preferred single practices such as wearing masks and hand washing with soap (26.67 percent). The easiest strategy to avoid the spread of this virus is to maintain social distance and use alcohol-based sanitizers [10]. 67.50 percent of respondents knew that vitamin and mineral supplements can help to strengthen the immune system, and 44.17 percent knew that Corona Virus infection can be prevented with vitamin C. The majority of the participants also took precautions such as avoiding crowded areas, markets, and religious sites (84.17 percent). Farmers should bring their own food and drink from home to their operational field, as well as soap and water, according to all responders (81.67 percent). Furthermore, 73.34 percent of respondents believe that during transplanting and other agricultural operations, it is important to wear a mask and maintain social distance.

During study the majority of respondents (96.66 percent) reported the difficulty in acquiring agriculture inputs, animal feed and vaccines (Table 3). Because most feed manufacturing

facilities, fertilizer stores, and agri input shops were shuttered during the lockdown, feed (for poultry, fish, and dairy cattle) and agri inputs were in limited supply (seeds, fertilizers, pesticides) [11]. Furthermore, a lack of transportation and a delay in the supply of vaccines and vital medicines resulted in the loss of numerous livestock, particularly poultry birds and goats, due to Raniket illness and enterotoxaemia. Secondly, 91.66 percent respondents faced the problem cold storage facilities for perishable goods are unavailable. Because the major crops in the study area are vegetables (Onion), fruits and greens. Thirdly, 85.00 per cent of respondents faced problem due to lack of external merchants for product procurement. The primary source of income for local farmers is the sale of farm products to the general public. Due to a lack of transportation and competition among merchants for farm produce procurement, the farmer had a difficult time selling his products, and prices were also low due to the presence of only a few merchants. Most of farmer (81.66 percent) faced lack of

technical specialists to fix the problem in a timely manner. 79.16 percent respondents faced labor shortages during critical periods of crop production in Sikar district of Rajasthan. Due to COVID-19 lockdown, Khan et al. [12] claimed a shortage of labour for rabi wheat crop harvesting in Punjab. Similarly, due to a lack of extension agency engagement, 74.16 percent of farmers said they were unaware of central and state government programmes. Similarly, Difficulties mobilizing specific farm equipment during harvest and vehicles for product transportation had a considerable influence on the responders, with 70.83 and 67.50 percent, respectively. Due to a scarcity of semen straws, dairy cattle artificial insemination was delayed, causing pregnancy and milk production to be delayed. The inability to treat animals or transport them to hospitals in the containment zone poses building up of ailments in cattle and poultry birds. Other difficulties in obtaining an e-pass for marketing fresh product (61.66 percent) and the lack of credit facilities from a bank (30.83 percent).

Table 1. Socio economic profile of respondents

(N=120)			
Sr. No.	Particulars	No	Percentage
1.	Age (yr)		
A	20-30	15	12.50
B	31-40	33	27.50
C	41-50	42	35.00
D	51-60	30	25.00
2.	Caste		
A	General	28	23.33
B	OBC	77	64.17
C	SC/ST	15	12.50
3.	Education		
A	Illiterate	10	8.33
B	Primary	10	8.33
C	Middle	18	15.00
D	High School	59	49.17
E	Higher Secondary	15	12.50
F	Graduate	8	6.67
4.	Annual Income		
A	Less than 1 lakh	28	23.34
B	1-2 lakh	31	25.83
C	2-3 lakh	52	43.33
D	4 lakh and above	9	7.50

Table 2. Knowledge level of farm women of Sikar district of Rajasthan towards COVID-19

Sr. No	Item	(N=120)					
		Yes	Per cent	No	Per cent	Do not Know	Percent
1	Corona Virus is a contagious disease caused by a virus.	95	79.17	12	10.00	13	10.83
2	The first case of COVID-19 was reported in China.	120	100.0	0	0	0	0
3	COVID-19 is a disease that can be spread from person to person.	92	76.67	18	15.00	10	8.33
4	Do you know the full form of COVID-19	10	8.33	110	91.67	0	0
5	The virus is primarily transmitted through respiratory droplets.	90	75.00	16	13.33	14	11.67
6	Through sneezing and coughing, respiratory droplets spread.	96	80.00	7	5.83	17	14.17
7	COVID-19 can also be spread by contact with contaminated surfaces.	72	60.00	33	27.50	15	12.50
8	COVID -19 symptoms include a cold, cough, and fever.	115	95.83	2	1.67	3	2.50
9	Patient with COVID-19 is unable to smell.	33	27.50	6	5.00	81	67.5
10	Can a COVID-positive mother breastfed her child.	5	4.17	105	87.50	10	8.33
11	Wearing masks can prevent COVID-19 infection.	55	45.83	65	54.16	0	0
12	Hand washing with soap on a regular basis can also help to prevent COVID-19 infection.	32	26.67	74	61.67	14	11.67
13	Maintaining a social distance of at least one meter is also crucial in preventing COVID 19.	91	75.83	6	5.00	23	19.17
14	COVID-19 infection can be prevented by following group behaviours such as wearing masks, washing hands often with soap, and maintaining at least one meter of social distance.	92	76.67	7	5.83	21	17.50
15	Vitamin and mineral supplements can help to strengthen the immune system.	81	67.50	18	15.00	21	17.50
16	Corona Virus infection can be prevented with vitamin C.	53	44.17	35	29.16	32	26.67
17	To prevent the spread of COVID-19, avoid crowds, markets, and religious sites.	101	84.17	4	3.33	15	12.50
18	During transplanting and other agricultural operations, it is important to wear a mask and maintain social distance.	88	73.34	16	13.33	16	13.33
19	Farmers should bring their own food and water from home if at all possible.	120	100.00	0	0	0	0
20	The farmer must carry soap and water with him to wash his hands frequently.	98	81.67	7	5.83	15	12.50

Table 3. Farm women faced constraints during the COVID 19 lockdown in Sikar district of Rajasthan

Sr. No	Constraints	(No of Respondents)	Percentage (N=120)
1	Acquiring agriculture inputs, animal feed, and vaccines is difficult.	116	96.66
2	Cold storage facilities for perishable goods are unavailable.	110	91.66
3	Lack of external merchants for product procurement	102	85.00
4	Lack of technical specialists to fix the problem in a timely manner	98	81.66
5	Labor shortages during critical periods of crop production	95	79.16
6	Unawareness about government programmes during the lockdown	89	74.16
7	Difficulties mobilizing specific farm equipment during harvest	85	70.83
8	Difficulties getting vehicles for product transportation	81	67.50
9	Local middlemen are being exploited in the price fixing of farm commodities.	77	64.16
10	Obtaining an e-pass for fresh product marketing is difficult.	74	61.66
11	Artificial insemination in dairy cattle is not done in a timely manner.	71	59.16
12	Direct Procurement Centers operate at a low level.	55	45.83
13	Essential animal husbandry services are not available in the containment zone.	53	44.16
14	During the lockdown, there is a fluctuation in the electricity supply.	46	38.33
15	The bank's credit facility is unavailable.	37	30.83

4. CONCLUSION

People's awareness at the grass-roots level is going to be critical in preventing the spread of highly contagious diseases like COVID-19, otherwise lacks effective treatment unless widespread public awareness programmes are started. The results of the present study revealed that there was high level of awareness particularly among the farm women could be due to awareness campaigns conducted by the Govt. of India, state governments, and other organizations, through electronic and social media. Farmers' livelihoods are seriously threatened by Covid-19. As a result, we will need to think outside the box to guarantee that our efforts to rebuild are tailored to the needs of small and marginal farms. Farmers' debts and cash flow difficulties were exacerbated by the lockdown, which necessitated the timely extension of subsidy-linked credit facilities in order to avoid further borrowing from the informal sector at higher rates of interest for cultivation.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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