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Awareness and experience of health-care workers during coronavirus disease 2019 pandemic

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Abstract:

BACKGROUND: During the 2nd week of July 2020, the coronavirus disease 2019 (COVID 19) infection spreading in the community. Now more than 15 lakhs peoples have been infected in India, out of the 26816 patients were deceased. COVID 19 outbreaks become an additional hazard to the health-care workers (HCWs), leading to fatigue, anxiety, depression and fear of death. The objective of this questionnaire-based study is to know about the knowledge of HCWs about COVID 19, their experiences while dealing with the disease, and the protective measures taken to prevent the infection.

MATERIALS AND METHODS: A cross-sectional, questionnaire-based study was conducted for 1 month starting from the 2nd week of June 2020 after getting institutional ethical clearance. This study included 240 HCWs posted in the medical and surgical Departments of All India Institute of Medical Sciences, Jodhpur, Rajasthan. This questionnaire was prepared in online Google forms and required 2 min to complete. Mean, median, range, and standard deviation were used to describe the continuous variables, and percentages were used to describe the categorical data.

RESULTS: Among 240 HCWs, 79.16% ($n = 190$) participants have good knowledge and adapted good precautions (score 15–23) for COVID 19 infection. Rest 20% ($n = 48$) and 0.8% ($n = 2$) participants has average (score 8–14) or poor knowledge (score <8) with adaptation of average or poor precautionary measures against COVID 19, respectively.

CONCLUSION: This study concluded that we have the requirement of more educational training programs for awareness of HCWs and precautionary measures against COVID 19. Thereby, HCWs can improve their knowledge and participate in this fight against COVID 19 with more efficiency and confidence.

Keywords:

Awareness, coronavirus disease 2019, health care worker, knowledge, precautions

Introduction

The coronavirus disease 2019 (COVID 19) is caused by a coronavirus that has evolved as a pandemic now.^[1] First-time corona virus-related respiratory illness was detected in Wuhan, China.^[1] The health-care workers (HCW) are front line warriors to fight against COVID 19. On a daily basis, they are exposed to infected patients for a long and are at increased risk of getting infected with this respiratory illness.^[2] To

date, many efforts have been made to know about the infectivity of coronavirus, clinical features, and diagnostic modalities, but no effective specific treatment is accessible yet.^[3] The infection with the SARS COV-2 virus has emerged as an additional hazard to the HCWs leading to fatigue, anxiety, depression, and fear of death. Due to poor understanding and lack of awareness about SARS-COV2 infection, the disease is spreading rapidly in India. It is important for all, especially the HCWs to have adequate knowledge and perception about COVID

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19. For all the HCWs it is mandatory to have proper training before their posting in COVID 19 positive patient wards so that they can treat the patient efficiently. HCWs should know about the course of COVID 19 infection, mode of transmission, protective measures, proper use of personal protective equipment (PPE), and precautions taken to elude the COVID 19 infection. The objective of this study is to assess the knowledge of HCWs about the mode of transmission of infection, the seriousness of disease, and precautions are taken to prevent the infection with COVID 19.

Materials and Methods

Study design

A cross-sectional questionnaire-based study was conducted in the medical and surgical Departments of All India Institute of Medical Sciences, Jodhpur, Rajasthan.

Sampling method and study population

This was the cross-sectional, duration based study, which was conducted for the period of one month after getting the institutional ethical clearance at AIIMS Jodhpur (AIIMS/IEC/2020-21/3039).

Inclusion criteria

1. All the HCWs (consultants, residents, interns, nursing officers) posted in the medical and surgical Departments of AIIMS Jodhpur
2. HCWs consenting to participate in the study.

Exclusion criteria-No exclusion criteria

Questionnaire formation and data collection

For this study, a questionnaire was formed with the help of training material from CDC update and the WHO for the detection, prevention, response, and control of COVID-19.^[4,5] This questionnaire was prepared in online Google forms which were sent to all consultants, postgraduate students, interns, and nursing staff. This questionnaire was provided in Hindi or English language and divided into different aspects of HCWs. First, online consent was obtained from all the participants before attending the questionnaire. [Annexure 1] All the questions were in the form of multiple choice. The total number of multiple-choice questions was 25 other than demography. It took only 2 min to attend all the questions, and after attending the questions, the form was submitted online.

The questionnaire was divided into four parts:

- a. **Demography of the HCWs:** included age, gender, address, designation, number of children, type of family, and living place
- b. **Awareness about COVID 19:** included eleven questions, to determine the knowledge of HCWs

about virus causing COVID 19, mode of transmission, incubation period, preventive measures, PPE kit, isolation, etc., Each correct response to questions in the section of awareness about the COVID 19 infection was given mark one

- c. **Personal experience of HCWs during COVID 19:** included six questions about HCWs who were tested, underwent isolation or self-quarantine. Experience of HCW related to facing violence at the workplace and psychological effect also included
- d. **Precautionary measures taken by HCWs during COVID 19:** included eight questions to know about the measures taken by HCW to prevent infection such as social distancing, using ayurvedic medicine to improve immunity, precaution at home, and changes in routine activities. Each correct response to questions in the section of precautions taken during COVID 19 was given mark one.

The reliability of the questionnaire

A questionnaire was formed with the help of training material from CDC update and WHO for the detection, prevention, response, and control of COVID-19. That questionnaire was sent to experts of different departments at AIIMS Jodhpur like the Department of Preventive and social medicine, Department of General Surgery, and Department of Obstetrics and Gynecology.

A pilot study was conducted on 20 HCWs working in clinical areas. The clarity, understanding, and organization of the questionnaire were checked. The suggestions for possible improvement from the respondents were considered. Cronbach's alpha test did the validation of the questionnaire and its value was 0.89. These participants from the pilot study were not included in the research.

Scoring method

This self-administered questionnaire includes a total of thirty-eight closed-ended questions and took approximately 2 min to complete. Each correct response to questions in the section of awareness about the COVID 19 infection and precautions taken to protect and prevent the transmission of the infection was given a score of one. Twenty-three was the total expected score. The final score was calculated and categorized as-

- Good knowledge and adequate precaution (Score 15–23)
- Average knowledge and average precaution (Score 8–14) or
- Poor knowledge and inadequate precautions taken (Score < 8).

Statistical analysis

The data were formulated in an excel sheet and was analysed using the IBM Statistical Package for the Social

Sciences (SPSS) for window, version 20 (IBM Corp, Armonk, New York, US). Mean, median, range, and standard deviation were used to describe the continuous variables, and percentages were used to describe the categorical data.

Ethical considerations

Confidentiality of personal information of participants was maintained throughout the study by making participants' information anonymous and asking participants to provide honest answers. All HCW's participation in this questionnaire-based study was voluntary, and validated informed consent took before starting to fill this questionnaire.

Results

Demographic variables

In this study, total of 240 HCWs from the medical and surgical department participated. The HCWs included Consultants, Nursing officers, Postgraduate residents, and interns. The majority of participants were from the age group of 20–30 years (73.3%) with a mean of 28.15 ± 5.91 . Out of 240 participants, 71.3% ($n = 171$) were male and only 28.7% ($n = 69$) were female. Among the various subgroups, 33.3% ($n = 80$) were nursing officers, 28.7% ($n = 69$) were interns, 25% ($n = 60$) were postgraduate residents and 12.9% ($n = 31$) were consultants. As per containment area, 89.6% ($n = 215$) were from noncontainment zone and 10.4% ($n = 25$) were from containment zone Jodhpur. It has been observed that out of 240 participants, spouses of 18.3% ($n = 44$) were HCWs and 6.3% ($n = 7$) were highly exposed employee. Out of 240 HCW, 14.2% ($n = 34$) were staying in joint family and rest 85.8% ($n = 206$) had nuclear family. In the family, 14 (5.8%) HCW had children >15 years old and 84 (35%) HCW had children <15 years old. Few HCW ($n = 14$; 17.9%) had kids <5 years of age [Table 1].

Awareness about coronavirus disease 2019

Among 240 participants, 87% ($n = 27$) consultants were knowing about the causative agent of COVID 19. The mode of transmission was correctly answered by interns 72.46% ($n = 50$) followed by consultants 70.96% ($n = 22$). The interns were more aware ($n = 40$; 57.97%) about the incubation period of COVID 19 followed by consultants ($n = 15$; 48.38%). The nursing officers were more aware of the symptoms of the infection which was correctly answered by 58.75% ($n = 47$) followed by consultants 58.06% ($n = 18$). The mode of virus transmission is correctly answered by 72.46% ($n = 50$) interns, 70.96% ($n = 22$) consultants, 65% ($n = 39$) residents, and 63.75% ($n = 51$) nursing officers. The interns and residents were more aware of the method of handwashing as it was correctly answered by 31.88% ($n = 22$) and 26.66% ($n = 16$), respectively. The preventive measures

Table 1: Demographic variables (n=240)

Demographic variables	Total, n (%)
Age (years)	
20-30	176 (73.3)
30-40	55 (22.9)
>40	9 (3.8)
Gender	
Female	69 (28.7)
Male	171 (71.3)
Residential location	
Containment zone, Jodhpur	25 (10.4)
Noncontainment zone, Jodhpur	215 (89.6)
Marital status	
Married	103 (42.90)
Single	137 (57)
Designation of HCW	
Consultant	31 (12.9)
Resident	60 (25.0)
Nursing officer	80 (33.3)
Intern	69 (28.7)
Spouse occupation	
Home maker	60 (25)
Health care worker	44 (18.3)
Highly exposed employee	7 (2.9)
Nonexposed employee	15 (6.3)
Not applicable	114 (52.2)
Type of family	
Joint family	34 (14.2)
Nuclear family	206 (85.8)
Family members	
<5 members	210 (87.5)
6-10 members	28 (11.7)
More than 10 Members	2 (0.8)
Number of children (years)	
<5	43 (17.9)
5-10	32 (13.3)
10-15	9 (3.8)
More than 15 years	14 (5.8)
No children	142 (59.2)
Total	240 (100)

HCW=Health care worker

like frequent hand washing, using sanitizers and PPE kit were adequately taken by 100% ($n = 31$) consultants, followed by interns 97.10% ($n = 67$). The knowledge about the isolation room for COVID 19-positive patients were more in interns (65.21%, $n = 45$) and residents (60%, $n = 36$). The information about wearing PPE kit was more in consultants, interns, residents and nursing officers 25.80% ($n = 8$), 23.18% ($n = 16$), 21.66% ($n = 13$) and 8.75% ($n = 07$), respectively. The consultants ($n = 8$, 25.80%) and interns ($n = 17$, 24.63%) were aware of the actual meaning of close contact with infected patients [Table 2].

Precautions taken by health-care workers

A total 90.32% ($n = 28$) consultants and 97.5% ($n = 78$) nursing officers took adequate preventive measures

Table 2: Awareness and precautions taken by health care workers

Questions on awareness and precautions	Consultants (n=31), n (%)	Nursing officer (n=80), n (%)	Resident (n=60), n (%)	Intern (n=69), n (%)
A 1	27 (87)	42 (52.50)	45 (75)	54 (78.26)
A2	22 (70.96)	51 (63.75)	39 (65)	50 (72.46)
A 3	15 (48.38)	36 (45)	22 (36.66)	40 (57.97)
A 4	18 (58.06)	47 (58.75)	28 (46.66)	10 (14.49)
A 5	28 (90.32)	50 (62.50)	47 (78.33)	61 (88.40)
A 6	5 (16.12)	15 (18.75)	16 (26.66)	22 (31.88)
A 7	31 (100)	74 (92.50)	58 (96.66)	67 (97.10)
A 8	25 (80.64)	38 (47.50)	23 (38.33)	22 (31.88)
A 9	30 (96.77)	79 (98.75)	58 (96.66)	59 (85.50)
A 10	8 (25.80)	7 (8.75)	13 (21.66)	16 (23.18)
A 11	25 (80.64)	62 (77.50)	48 (80)	54 (78.26)
P 1	3 (9.6)	59 (73.75)	39 (65)	37 (53.62)
P 2	28 (90.32)	78 (97.50)	51 (85)	46 (66.66)
P 3	31 (100)	79 (98.75)	59 (98.33)	65 (94.20)
P 4	30 (96.77)	80 (100)	57 (95)	62 (89.85)
P 5	28 (90.32)	48 (60)	52 (86.66)	59 (85.50)
P 6	27 (87.09)	65 (81.25)	39 (65)	40 (57.97)
P 7	28 (90.32)	62 (77.50)	47 (78.33)	49 (71.01)
P 8	31 (100)	66 (82.50)	51 (85)	64 (92.75)

such as changing clothes and taking bath. About 97.5% of HCW were cleaning their hands with soap and water or sanitizer to maintain hygiene and to prevent disease affection. The nursing officer and consultants were using face masks after entering the hospital 100% ($n = 80$) and 96.77% ($n = 31$), respectively. It has been observed that 15.8% ($n = 38$) HCWs were taking ayurvedic medicines to boost the immunity. Out of 240 HCW, 77.5% and 88.33% were avoiding going out to market or relatives place to avoid the community spread, respectively [Table 2].

Personal experience

Among 240 HCWs, 18.3% ($n = 44$) were tested for COVID 19, 16.3% ($n = 39$) were isolated and 41.3% ($n = 99$) were quarantined. In this pandemic, 4.2% ($n = 10$) HCW faced violence in hospitals during this COVID pandemic. According to 53% ($n = 129$) HCW, the patient's care and management was affected due to fear of getting COVID infection. Multiple episodes of anxiety, depression, and feeling low were experienced by 58.8% ($n = 41$) HCWs.

The mean score of awareness and precautions taken by all participants was 16.25 ± 2.58 . Among 240 HCW, 79.16% ($n = 190$), 20% ($n = 48$) and 0.8% ($n = 2$) scored 15–23, 8–14 and <8 respectively. Out of this 79.16% participants, consultants, interns, residents and nursing officers scored 83%, 89.63%, 81.66%, and 66.25%, respectively. There were two interns who scored <8 (0.8%). Among subgroups, 33.75% ($n = 27$) nursing officer, 18.33% ($n = 11$) residents, 16.10% ($n = 5$) consultant and 7.24% ($n = 5$) interns scored between 8 and 14 [Table 3].

According to our study, 79.16% ($n = 190$) participants have good knowledge and adapted good precautions (score 15–23) for COVID 19 infection. Rest 20% ($n = 48$) and 0.8% ($n = 2$) participants have an average (score 8–14) or poor knowledge (score <8) with an adaptation of average or poor precautionary measures against COVID 19, respectively [Table 4].

Discussion

According to the Indian council of medical research, there are 15 lakh COVID positive cases in India. In this pandemic of COVID 19, HCW are at increased risk of getting infected. Adequate knowledge about the COVID infection and precautionary measures can help HCW to protect themselves from getting infected. With the help of this questionnaire-based study, we are providing an overview of HCW about awareness, precautions taken, and personal experience in COVID 19 pandemic.

The majority of HCWs were below 30 years of age (28.15 ± 5.9) who participated in this study. Our study is supported by Mumu *et al.* where the majority of doctors participated were <30 years of age with a female predominance.^[6]

It has been recorded that about 21.2% ($n = 51$) spouse of HCW was also HCW or highly exposed employees, which increases the probability of getting infected with COVID 19.

For all the HCW, it is important to know about the mode of infection with COVID 19 and its precautionary measures to prevent the further transmission of the

disease. In this study, most of the HCW knew about the causative agent of COVID19. It is important to know about the mode of transmission of COVID 19. Unfortunately, less number of HCW knew about the incubation period of COVID 19. It is important to know the incubation period of the COVID 19 to determine the safe period to treat suspected patients and to advise the patient for isolation or quarantine to prevent the transmission of the infection.^[7]

The symptoms of COVID 19 include fever, cough, sneezing, running nose, breathlessness, sore throat, and diarrhea. It is important for all HCW to know about the symptoms and signs of infection so that they can identify the suspected patients and can treat the disease timely and prevent the life-threatening complication. In our study, <½ of HCW knew about all the presenting symptoms of COVID 19.^[8] This is unfortunate that despite a large number of resources, training provided to HCWs, there is a gap between the amount of information given and the depth of knowledge attained. It concluded that we need more informative educational training about COVID 19.

Most of the HCW consider the COVID 19 infection as a dangerous and fatal disease. To prevent the transmission, the COVID 19 positive patients should be kept in an air-born isolation room without exhaust. Hand hygiene plays an important role in preventing the spread of infection. According to the CDC, alcohol-based hand rub or soap should be used.^[9] In our survey, <25% of HCW correctly answered the method of hand washing.

The CDC has provided recommendations about using PPE kit for COVID 19 suspect or confirmed patients.^[10,11] The awareness about using PPE kit while examining or operating the COVID 19 suspect or positive patients was high in all HCWs. Almost all participants have given correct answers about PPE Kit.

In our study, it has been observed that >50% of HCW were feeling depressed and low. During this COVID 19 pandemic, HCW is more worried about getting infected as they are front line warriors which can lead to insomnia, anxiety, depression, obsessive-compulsive

symptoms.^[12,13] For HCWs, it is important to provide adequate working conditions, recovery programs to ensure the best mental, physical and social conditions so that the HCW can maintain or attain an optimal state of health.^[14]

As per our institute protocol, only 18.33% HCW were tested for COVID 19 as they were exposed to COVID confirmed patients and <50% were quarantined. The quarantine was done to reduce the outbreak of infections and to restore public health.^[15] Among this tested HCW, about half of the participants felt that the patient's care and management are affected because of fear of getting infected with COVID 19.

There are more chances of acquiring infection in the family if both the partners are HCWs or highly exposed employees. It has been observed in the study that a spouse of 21.25% of participants were HCW or highly exposed employees, out this >80% HCW did not prefer to get isolated. Children have more chances of getting infected as they have low immunity. In this study, 35% of HCW had children with an age <15 years. However, only 13% preferred to get isolated to protect their children.

COVID 19 infection is in a phase of community spread. It can only be controlled by maintaining adequate hygiene and following social distancing. About 14% of HCW followed the social distancing at home and kept themselves in isolation.

Among all participants, the knowledge score regarding COVID 19 infection and precautionary measures was 16.28 ± 2.56 . Among all, 79% of HCW were having a score between 15 and 23. The score between 8 and 14 and <8 was attended by 20% and 0.8% of HCW, respectively [Table 4]. It has been observed that awareness about COVID 19, is good (> 80%) in interns, consultants, residents followed by nursing officers (<70%) [Table 5]. This was contradictory to the study conducted in HCW showing that the physicians and nurses had significantly better knowledge as compared to other HCW.^[16]

A study was conducted in HCWs in the Kingdom of Saudi Arabia and South Korea revealed poor knowledge about the emerging disease, mode of

Table 3: Personal experience

Designation questions	Consultant, n (%)		Nursing officer, n (%)		Resident, n (%)		Intern, n (%)	
	Yes	No	Yes	No	Yes	No	Yes	No
Question 1	5 (16.1)	26 (83.9)	20 (25)	60 (75)	14 (23.3)	46 (76.7)	5 (92.8)	64 (7.2)
Question 2	2 (6.5)	29 (93.5)	14 (17.5)	66 (82.5)	19 (31.7)	41 (68.3)	4 (5.8)	65 (94.2)
Question 3	7 (22.7)	24 (77.4)	48 (60)	32 (40)	27 (45)	33 (55)	17 (24.6)	52 (75.4)
Question 4	0 (0)	31 (100)	7 (8.8)	73 (91.2)	2 (3.3)	58 (96.7)	1 (1.4)	68 (98.6)
Question 5	20 (64.5)	11 (35.5)	32 (40)	48 (60)	29 (48.3)	31 (51.7)	48 (69.9)	21 (30.4)
Question 6	17 (54.8)	14 (45.2)	46 (57.5)	34 (42.5)	35 (58.3)	25 (41.7)	43 (62.3)	26 (37.7)

Table 4: Health care worker distribution according to the scoring (n=240)

Total score	Frequency (%)
Score<8	2 (0.8)
Score 8-14	48 (20)
Score 15-23	190 (79.20)
Total score	240 (100)

Table 5: Scoring according to designation

Designation scoring	Score 15-23, n (%)	Score 8-14, n (%)	Score<8, n (%)
Consultants (n=31)	26 (83.87)	5 (16.12)	0
Nursing officers (n=80)	53 (66.25)	27 (33.75)	0
Resident (n=60)	49 (81.66)	11 (18.33)	0
Intern (n=69)	62 (89.85)	5 (7.24)	2 (2.8)

transmission, and suboptimal infection control practice among the participants.^[17] We should improve knowledge of this disease at each level of HCW to prevent the spread of disease as well as reduce morbidity. In this study, we have evaluated the awareness and precautions taken by HCWs, including post-graduate residents and interns. In the time of this crisis, the Health Ministry of India provisionally permitted senior medical undergraduates and interns to monitor and treat the patients infected with COVID 19. With this initiative of giving training to all interns and post-graduate residents, we can provide good care to a large number of infected patients and overcome the shortage of health-care workers.^[18,19]

Limitation of the study

The data presented in the study depends on participants' honesty and recall ability, which can lead to recall bias. It is a single center study, which has a limited number of participants. A multicenter study would have been better to assess the awareness about COVID 19 in HCWs. Despite these limitations, this study provided important information about the awareness and precautions taken by HCWs during the COVID pandemic.

Conclusion

The health-care workers have adequate knowledge about infection, precaution to be taken and a positive attitude for prevention of COVID 19. However, some areas have a gap in the source of information provided to gain adequate knowledge about the presentation and prevention of COVID 19 infections. Hence, we have the requirement of more educational training programs for HCW awareness, improvement of knowledge about COVID 19 transmission mode or isolation protocol, and precautionary measures against COVID 19. Thereby, HCWs can participate in this fight against COVID 19 with more efficiency and confidently.

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Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. WHO Director-General's Opening Remarks at the Media Briefing on COVID-19-11 March; 2020. Available from: <https://www.who.int/dg/speeches/detail/who-director-generals-opening-remarks-at-the-media-briefing-on-covid-19>; 11 March; 2020.
2. Yi Y, Lagniton PN, Ye S, Li E, Xu RH. COVID-19: What has been learned and to be learned about the novel coronavirus disease. *Int J Biol Sci* 2020;16:1753-66.
3. Zhang WR, Wang K, Yin L, Zhao WF, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. *Psychother Psychosom* 2020;89:242-50.
4. Information for Healthcare Professionals about Coronavirus (COVID-19). Updated July 2020. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/index.html>; July; 2020.
5. World Health Organization. Emerging Respiratory Viruses, Including COVID-19: Methods for Detection, Prevention, Response, and Control. World Health Organization; June; 2020. Available from: <https://openwho.org/courses/introduction-to-ncov>; June; 2020.
6. Mumu SB, Aktar MN, Nahar Z, Sharmin S, Mostaid S. Medical doctors awareness, perception, and attitude towards COVID-19 in Bangladesh: A cross sectional study; 2020.05.14.20101659.
7. Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The Incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: Estimation and application. *Ann Intern Med* 2020; 172 (9): 577-582. [Doi: 10.7326/M20-0504].
8. Ng K, Poon BH, Kiat Puar TH, Shan Quah JL, Loh WJ, Wong YJ, et al. COVID-19 and the risk to health care workers: A case report. *Ann Intern Med* 2020;172:766-7.
9. Modi PD, Kumar P, Solanki R, Modi J, Chandramani S, Gill N. Hand hygiene practices among Indian medical undergraduates: A questionnaire-based survey. *Cureus* 2017;9:e1463.
10. Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Zhang W, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 2020;579:270-3.
11. COVID-19: Protecting health-care workers. *Lancet* 2020;395:922.
12. Wang HX, Wang L, Zhang WR, Xue Q, Peng M, Sun ZC, et al. Effect of transcranial alternating current stimulation for the treatment of chronic insomnia: A randomized, double-blind, parallel-group, placebo-controlled clinical trial. *Psychother Psychosom* 2020;89:38-47.
13. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. Mental health care for medical staff in China during the COVID-19 outbreak. *Lancet Psychiatry* 2020;7:e15-e16.
14. Sonino N, Fava GA. Rehabilitation in endocrine patients: A novel psychosomatic approach. *Psychother Psychosom* 2007;76:319-24.
15. Giubilini A, Douglas T, Maslen H, Savulescu J. Quarantine, isolation and the duty of easy rescue in public health. *Dev World Bioeth* 2018;18:182-9.
16. Asaad A, El-Sokkary R, Alzamanan M, El-Shafei M. Knowledge

- and attitudes towards Middle East respiratory syndrome-coronavirus (MERS-CoV) among health care workers in South-Western Saudi Arabia. *East Mediterr Health J* 2020;26:435-42.
17. Alsahafi AJ, Cheng AC. Knowledge, attitudes and behaviours of healthcare workers in the Kingdom of Saudi Arabia to MERS coronavirus and other emerging infectious diseases. *Int J Environ Res Public Health* 2016;13:1214.
 18. A Step India is Taking Could Make Doctor Shortage a Non-Issue in Coronavirus Battle; 27 March 2020. Available from: <https://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/a-step-india-is-taking-could-make-doctor-shortage-a-non-issue-in-coronavirus-battle/articleshow/74841848.cms>, 27 March; 2020.
 19. Das D, Kudpi RS, Mukherjee M, Unnikrishnan B, Rungata N. Awareness among under graduate students of Mangalore city regarding novel coronavirus (COVID-19)-A questionnaire study. *Disaster Med Public Health Prep* 2020 Jun 24 : 1–4. [Doi: 10.1017/dmp. 2020.204].

Questionnaire ^[4,5] (Annexure 1)

Questionnaire for Health Care Workers

Demography

1. Name (Optional)
2. Age:
3. Gender: Male/Female
4. Address: Containment zone jodhpur, Containment zone outside jodhpur, Non containment zone jodhpur, Non containment zone outside jodhpur.
5. Marital status: Single/Married/Separated/Divorced/Widow
6. Designation-Consultant/Resident/Nursing officer/Intern
7. In which health department do you work:
8. Spouse's Occupation: Home maker/Health care worker/ Highly exposed employee/non highly exposed employee.
9. Living place: Flat/House/Villa
10. Numbers of room in house:
11. Type of family: Nuclear/Joint family
12. Number of Family members:
13. Age of children: <5 years/5–10 years/10–15 years/More than 15 years/No children

Awareness about COVID-19

1. The virus causing COVID-19 is
 - a. Severe Acute Respiratory Syndrome (SARS)
 - b. SARS COV-2
 - c. None
 - d. Both
2. Mode of virus transmission from person to person
 - a. Droplets
 - b. Direct contact
 - c. Both
 - d. None
3. Incubation period of COVID-19 appears in
 - a. 2-4 days
 - b. 1-14 days
 - c. 7-14 days
 - d. None
4. Symptoms of COVID-19
 - a. Cough
 - b. Fever
 - c. Breathlessness
 - d. Diarrhoea
5. COVID-19 is fatal
 - a. Yes
 - b. No
 - c. Sometimes
 - d. No opinion
6. Method of hand wash
 - a. Wash the hands with soap & water for 20 seconds
 - b. Use 75% alcohol based hand rub for 15 seconds

- c. Wash the hands with soap & water for 30 seconds
 - d. All the above
7. Preventive measures for COVID-19
- a. Frequently washing hands with soap and water or sanitizers
 - b. Wearing N95 masks, goggles and PPE kit
 - c. Clean the surface in contact with suspect or COVID-19 positive patient
 - d. All the above
8. Source of reliable information about COVID-19
- a. News paper
 - b. Social Media
 - c. Articles on government website
 - d. All
9. COVID-19 positive patients should be kept in
- a. Air born infection isolation room with exhaust
 - b. Air born infection isolation room without exhaust
 - c. Any room in hospital
 - d. None of the above
10. What PPE should be worn by health care workers while examining COVID-19 suspect patients:
- a. N95 mask and gloves
 - b. Goggles
 - c. Gown
 - d. All of the above
11. What do you mean by close contact
- a. Being within 10 feet of the COVID-19 positive patients
 - b. Being within 6 feet of the COVID-19 positive patients
 - c. Having direct contact with respiratory droplets, sputum etc.
 - d. None

Precautions Taken by Health Care Workers:

- 1. Do you follow social distancing at home (staying in different room)-Yes/No/Sometimes
- 2. Do you take bath or change clothes after entering home-Yes/No/Sometimes
- 3. Do you clean your hands with soap & water or sanitizer frequently-Yes/No/Sometimes
- 4. Do you use face masks and gloves after entering in hospital-Yes/No/Sometimes
- 5. Do you take ayurvedic medicines to boost the immunity-Yes/No/Sometimes
- 6. Do you avoid consuming food outside-Yes/No/Sometimes
- 7. Do you avoid going out for shopping-Yes/No/Sometimes
- 8. Do you avoid going to relatives place-Yes/No/Sometimes.

Personal Experience of Health Care Workers:

- 1. Have you ever been tested for COVID-19 infection-Yes/No
- 2. Have you ever been isolated for COVID-19 infection-Yes/No
- 3. Have you ever been self-quarantine for COVID-19 infection-Yes/No
- 4. Have you ever faced any violence during COVID-19-Yes/No
- 5. Fear of COVID-19 effect the patient's care-Yes/No
- 6. Anxiety or feeling low is common nowadays-Yes/No.