



Perception of Junior Doctors and Nurses towards the Covid-19 Disease in a Tertiary Care Centre in North India-A Questionnaire Based Study

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ABSTRACT

Background: Resident or junior doctors and nursing staff make up the backbone of any public health care facility more so in cases of centres affiliated to teaching hospitals. Resident physicians have the most prolonged contact with patients as they represent the first communication interface between the attending physician and the patient. Similarly, the nursing staff has a critical role in patient care. Therefore, to minimize the morbidity and mortality due to COVID-19, it is important to be fully informed and compliant with measures to contain COVID-19. **Objectives:** To assess the perception of the junior doctors and nurses regarding the various aspects of COVID-19 disease. **Methods:** A performed structured questionnaire with closed-end questions was sent to the study subjects using electronic media. **Results:** The questionnaire was sent to 250 persons (100 junior doctors and 150 nurses) working in the clinical departments of the hospital, out of which, 139 responded comprising 58 (41.73%) junior doctors and 81 (58.27%) nurses. Overall, 79.14% (n=110) had sufficient knowledge regarding the disease, and the majority (94.96%) were practising safe measures. In univariate logistic regression analysis of various variables with knowledge, the qualification was the only variable that was found to be more significantly associated as far as knowledge and practices were concerned (junior doctors as compared to nursing staff). **Conclusion:** Adequate knowledge apart from defining day to day behaviour of health care workers, also prepares them for coping strategies in cases of crisis in a critical situation like the one world is experiencing now.

Keywords: COVID-19, Knowledge, Junior doctors, Nurses, Perception

INTRODUCTION

The world right now is facing an unprecedented health care crisis in the form of the spread of a highly contagious virus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), responsible for Coronavirus Disease 2019 (COVID-19). India has become the second-worst affected country with around 240 million people affected and two and a half lakh deaths till the first week of May 2021 [1]. The disease is transmitted from person to person by close contact via respiratory secretions in coughs or sneezes or by touching virus-contaminated surfaces or objects [2]. Apart from the tragic loss of life with exponential deaths, the pandemic has destroyed the global economy and overwhelmed the healthcare system of even the most developed nations of the world. India, with a population of over 130 crores and inadequate health care infrastructure is, fighting a battle with doctors, nurses, and other health care

workers as soldiers in this war. Resident physicians have the most prolonged contact with patients as they represent the first communication interface between the attending physician and the patient. Their work involves initial and ongoing assessment of patient's medical status, developing a treatment plan, recording progress notes, ordering tests, and also arranging for discharge and aftercare including patient education and counselling. Since the spread of the pandemic to our hospitals, the attention of resident doctors is also required for mastering the art of donning Personal Protective Equipment (PPE) and implementing and understanding triage policies [3].

The residency consists of gradual or graded assumption of responsibility for patient care while under supervision of seniors, in an adequate learning environment. In many hospitals, residents' schedules and workflow have changed since the coronavirus outbreak started, diverting supplies and workforce from other departments like surgery and orthopaedics to such frontlines units as emergency departments and intensive care units (normally managed only by internal medicine and anesthesiology residents); resulting in an unfamiliar working environment for many residents, increasing the risk to their health. Thus in this, unprecedented times amidst anxiety and insecurity, the residents continuously have to redefine their roles to provide the services on the front lines. The poor infection control practices and lack of adequate knowledge may have a profound effect on the physical and mental health of the residents as infections continue to rise and the patient load increases. Globally, nurses make up 59% of the healthcare workforce, as per the figures available with the World Health Organization (WHO). They are playing a critical role in the fight against COVID-19, pulling long shifts and putting themselves at risk of infections to care for patients. Despite intense training, it is not uncommon for nurses to not be fully aware of their exposure while caring for patients, especially when they feel stressed or exhausted.

MATERIALS AND METHODS

In this study, a questionnaire was sent to the convenient sample of 250 persons (100 junior doctors or residents and 150 nurses) working in the clinical departments of the hospital, from July 20th to 27th, 2020. This questionnaire was prepared after literature reviews based on information collected from CDC Atlanta, and the Ministry of Health and Family Welfare (MOHFW), New Delhi and consisted of three sections: the demographic data, the knowledge, and practices sections. The data were collected through an anonymous, self-rated questionnaire that was distributed to all participants over the internet (WhatsApp and email). The first section was for background data which included age, gender, place of work, and qualification. The knowledge section had questions dealing with virus characteristics, modes of transmission, disease symptoms, high-risk situations, and prevention strategies. For the first question, out of seven listed symptoms, those who identified four or more symptoms associated with the disease were given a score of one, and those identifying 3 or less than 3 were given a score of zero. For the rest of the questions, each correct answer was given one mark whereas the wrong answer was given zero. To check for safe practices, four questions were asked, 3 marks were given to those who answered always, 2 to those who answered sometimes and one to those who answered never. Thus, out of a maximum possible score of 12, those scoring 8 or more were regarded to be following good practices which helped in preventing the spread of the disease.

Ethical Considerations

Informed consent was obtained from all participants and ethical approval was obtained from the institutional ethical Committee and confidentiality of the information provided was maintained.

RESULTS

The questionnaire was sent to 250 persons working in the clinical departments (100 junior doctors or residents and 150 nurses) and 139 responded. All completed questionnaires were cross-checked and edited on the same day and before data entry to ensure data consistency and completeness. Out of 139 responses, there were 91 females (65.47%) and 48 (34.53%) males. 111 (79.86%) belong to the age group of 20-30 years, 22 (15.83%) to 30-40 years, and 6 (4.32%) to the age group of 40-50 years. The respondents included 58 (41.73%) doctors and 81 (58.27%) were nurses. Out of the 139, 81 were working in the general ward alone, 18 were in intensive care alone and the rest 40 were doing the duty in both the places as per the roster. Regarding their source of information on the COVID-19 pandemic, 63 (45.32%) study subjects identified the official sources like government websites and WHO as their main information source, 41 (29.50%) as news media, 31 (22.30%) social media like Whatsapp and Facebook and 4 (2.88%) others as the main source of information (Table 1). A score of 70% or more was used to define adequate knowledge with a mean score of

8.16 ± 1.3 out of 11. Overall, 79.14% (n=110) had adequate knowledge (Table 2). The majority of respondents were observing safe measures in the prevention of COVID-19. Out of 139 participants, 132 (94.96%) scored 8 or more than 8 with a mean score of 11.37 ± 1.12 (Table 3).

Table 1 Distribution of knowledge of study subjects

Knowledge	Frequency	Percentage
Symptoms		
Sore throat	107	76.98%
Sneezing	57	41.01%
Cough	118	84.89%
Running nose	45	32.37%
Fever	126	90.65%
Abnormality of smell sensation	76	54.68%
Myalsia	72	51.80%
Treatment of COVID-19		
No definitive treatment is available	4	2.88%
Only symptomatic and supportive management	27	19.42%
Both options are correct	108	77.70%
The majority of COVID-19 patients are asymptomatic and can transmit the disease		
False	12	8.63%
True	127	91.37%
Elderly, those with chronic disease, those with immunosuppression are more likely to develop the disease		
False	7	5.04%
True	132	94.96%
Patients who are COVID positive but don't have any symptoms cannot transmit the disease		
False	117	84.17%
True	22	15.83%
Contact with animals/Eating non-veg food can transmit the disease		
False	111	79.86%
True	28	20.14%
The virus spreads mainly through		
None of the above	1	0.72%
Contaminated surfaces	3	2.16%
Respiratory droplets	13	9.35%
Both of the above	122	87.77%
Effective protection of the elderly using social distancing should be the top priority in the current situation		
False	5	3.60%
True	134	96.40%
Children and young adults need not take any precaution to prevent COVID-19		
False	124	89.21%
True	15	10.79%
People who have contact with a COVID positive patient should be isolated immediately and kept under observation		
False	6	4.32%
True	133	95.68%

In today's time when there is no vaccine for COVID, the norms of mask-wearing/social distancing are the only preventive measure		
False	5	3.60%
True	134	96.40%
Knowledge score		
Inadequate knowledge	29	20.86%
Sufficient knowledge	110	79.14%
Mean ± Stdev	8.16 ± 1.3	
Median (IQR)	9 (8-9)	
Range	2-9	

Table 2 Association of socio-demographic characteristics with knowledge and practice

Socio-demographic characteristics	Inadequate knowledge (n=29)	Sufficient knowledge (n=110)	p-value	Test performed	Good practice (n=132)	Poor practice (n=7)	p-value	Test performed
Age(years)								
20-30	21 (72.41%)	90 (81.82%)	0.329	Fisher Exact test	106 (80.30%)	5 (71.43%)	0.335	Fisher Exact test
30-40	7 (24.14%)	15 (13.64%)			21 (15.91%)	1 (14.29%)		
40-50	1 (3.45%)	5 (4.55%)			5 (3.79%)	1 (14.29%)		
Gender								
Female	18 (62.07%)	73 (66.36%)	0.665	Chi square test,0.187	88 (66.67%)	3 (42.86%)	0.234	Fisher Exact test
Male	11 (37.93%)	37 (33.64%)			44 (33.33%)	4 (57.14%)		
Place of work								
Both	7 (24.14%)	33 (30%)	0.13	Chi square test,4.086	36 (27.27%)	4 (57.14%)	0.177	Fisher Exact test
General ward	15 (51.72%)	66 (60%)			79 (59.85%)	2 (28.57%)		
Intensive care (ICU/MICU/SICU)	7 (24.14%)	11 (10%)			17 (12.88%)	1 (14.29%)		
Qualification								
Junior doctors	7 (24.14%)	51 (46.36%)	0.031	Chi square test,4.662	56 (42.42%)	2 (28.57%)	0.699	Fisher Exact test
Nursing staff	22 (75.86%)	59 (53.64%)			76 (57.58%)	5 (71.43%)		
Source of information on COVID-19								
Any other	1 (3.45%)	3 (2.73%)	0.003	Fisher Exact test	2 (1.52%)	2 (28.57%)	0.024	Fisher Exact test
News Media	9 (31.03%)	32 (29.09%)			40 (30.30%)	1 (14.29%)		
Official sources (govt. websites/WHO)	6 (20.69%)	57 (51.82%)			60 (45.45%)	3 (42.86%)		
Social media (whatsapp/facebook)	13 (44.83%)	18 (16.36%)			30 (22.73%)	1 (14.29%)		

Table 3 Distribution of practice of study subjects

Practice	Frequency	Percentage
Because of the risk of acquiring the disease, I usually avoid going to the crowded places		
Always	103	74.10%
Never	7	5.04%
Occasionally	29	20.86%
I wear a mask whenever I am in hospital		

Always	131	94.24%
Sometimes	8	5.76%
In the last few months, I have refrained from shaking hands		
Always	116	83.45%
Never	3	2.16%
Sometimes	20	14.39%
I remember to wash my hands before and after handling the patient and touching any potentially contaminated surface		
Always	128	92.09%
Sometimes	11	7.91%
Practice score		
Good practice	132	94.96%
Poor practice	7	5.04%
Mean \pm SD	11.37 \pm 1.12	
Median(IQR)	12 (11-12)	
Range	7-12	

DISCUSSION

As there is no definite treatment available as yet, the approach to disease lies in controlling the source of infection; using personal protective equipment to reduce the risk of transmission; and early diagnosis, isolation, and proper management of affected patients. Resident or junior doctors and nursing staff make up the backbone of any public health care facility more so in cases of centres affiliated to teaching hospitals. Exposed doctors and nurses may experience a high incidence of infections, particularly for unprotected and repeated exposures as opposed to the general public who probably have exposure once. Thus, both nurses and resident doctors are the most important links in the preventive strategies of any health care facility. It is difficult to get an accurate figure on the number of Health care providers affected by the disease worldwide. The World Health Organization (WHO), which is coordinating the global response to the pandemic, says that its 194 member states are unable to continuously provide and update the comprehensive figures on health worker infections as they grapple with the unprecedented crisis. In a survey carried out in three developed countries most affected by the disease in the initial stage of the pandemic, it was estimated that the infections in doctors' nurses, and supporting staff may have accounted for 20.4% of total cases (23,728/116,386) in Spain (ISCII, <https://www.isciii.es>), 10.7% in Italy (18,553/173,730) (FNOMCeO, <https://portale.fnomceo.it/> and 19% (9,282/49,370) in the United States (probably because of inadequate knowledge of disease and short supply of personal protective equipment); with many health care workers succumbing to disease [4,5]. Therefore, to minimize the morbidity and mortality due to COVID-19, it is important for those involved directly in caring for the patients to be aware as well as compliant with measures to contain COVID-19 [6].

In our study out of 139 responses, there were 91 females (65.47%) and 48 (34.53%) males. Females respondents comprised 58.9% in a study from Nepal, 56.2% in Nigerian study, 49.4% from Egypt, and 74% from a European nation, Greece, however, a vast majority of the participants were male (n=87, n=64%) in a study from African nation Uganda [7-11]. The majority of respondents, 111 (79.86%) belong to an age-a group of 20-30 years; similarly, in the neighbouring country of Nepal, a large percentage were in the age group of 16-29 years (67.1%) and from UAE, 32.1% (n=147) were aged 25-34 years [12]. The mean age of participants was 34.95 \pm 9.32 years and ranged from 20 to 60 years in Egyptian study [9].

Out of 139 who responded to the questionnaire, 58 (41.73%) were junior doctors and 81 (58.27%) were nurses. In a study from neighboring country, 29.98% (n=120) physicians, 46.65% (n=189) pharmacists and 25.36% (n=105) nurses were among the respondents out of total of 414 [13]. The 62% responses were received from medical doctors in a study from Uganda whereas, in the Nigerian study, doctors constituted 23.7% of respondents and nurses 40.9% followed by paramedics [8,11]. In a study from UAE, the doctors accounted for 30.2% of the respondents (n=137,

30.2%) and in a similar survey in Greece, the nurses accounted for (47.5%), followed by physicians (30.5%) and paramedics (19%) [12].

In our study, the majority of (45.32%) study subjects identified the official sources like government websites and WHO as their main source of information, followed by news media for 41 (29.50%) subjects; similar to two other nations, Saudi Arabia and Vietnam where government sources followed by social media played a predominant role in the information sources [14,15]. However, in a study from another developing country Egypt, the main source of information was listed as physicians (29%) followed by the ministry of health website (27%) and social media (20.6%) [9]. The majority of participants of the UAE study (n=276, 61.0%) used social media to obtain information and in developed nation Greece, 69.8% received information from electronic media (TV/radio) [10,12].

The symptom recognition along with the relevant history of contact is the most effective strategy in early recognition and isolation of patients to prevent further spread. Therefore, we wanted to see the familiarity of junior doctors and nurses with the symptoms of COVID-19 which have been described so far. So individual symptoms like the fever were marked correctly by 126 (90.65%), followed by cough 118 (84.89%), sore throat 107 (76.98%), abnormality of smell sensation by 76 (54.68%) malaise 72 (51.80%), sneezing 57 (41.01%) and running nose by 45 (32.37%) participants. It is important here that almost 90% of residents and nurses were aware of fever, only 54% correctly marked the symptom of loss of smell sensation, and 51% identified malaise as one of the complaints of the patient. As very few patients will present with all the classical symptoms of the disease, the high index of suspicion and knowledge of all the symptoms including the uncommon ones is of paramount importance to the resident doctors so that they don't miss the patients as delayed in diagnosis in a pandemic can result in the spread of the disease and massive surge in cases and overburdening of the health care facilities. Similarly, the early recognition of the disease, in high-risk people, in the elderly, or when there is a suggestion of contact history will be the single most effective step in a pandemic to limit the further spread of the disease. The residents' doctors and nurses are likely to be in prolonged and repeated contact with patients and colleagues who have atypical, few, or no symptoms while still being highly contagious, so this has important implications for their health and those they come in contact with [16,17].

Overall, 79.14% (n=110) had adequate knowledge with a mean score of 8.16 ± 1.3 out of 11. A score of 70% or more was used to define adequate knowledge. In a study from another Northern Indian tertiary care centre, HCWs had an average correct response rate of 65% [18]. In a study from neighbouring Nepal, the majority of healthcare workers had good to moderate knowledge (n=82.15%, and in another neighbouring country knowledge score was quite good (93.2%, n=386) [13]. Now if we compare these results with some other developing nations, the mean correct answer rate was 80.4% in Egypt, 69% (n=94) in Uganda, 78.6% in Nigeria, 89% in China, and 88.28% in Greece whereas in Iran, another country severely affected early in the pandemic, 99% of respondents had excellent knowledge level regarding the modes of transmission but as far as symptoms were concerned, only 86% had sufficient knowledge [8,9,11,19,20]. On the other hand, in a study from the United Arab Emirates, a significant proportion of HCWs had poor knowledge of its transmission (n=276, 61.0%) and symptom onset (n=288, 63.6%).

In our study in univariate logistic regression analysis of various socio-demographic variables factors like gender, age, and place of work didn't show any significant association with the knowledge. The factor associated with good knowledge were qualification as a trained doctor (OR: 2.597; 95% CI: 1.041-6.476; p-value 0.031) and source of information being official government sources (p-value 0.003). Doctors showed higher knowledge scores than nurses and paramedics in studies from China, Greece, Egypt, and Uganda [9-11,19]. Factors associated with knowledge in this study were age >40 years and news media as an information source [11].

In our study, the majority of respondents were observing safe measures in the prevention of COVID-19. Out of 139 participants, 132 (94.96%) scored 8 or more than 8 with a mean score of 11.37 ± 1.12 . There was no significant association with regards to age group, place of work, and qualification as junior doctors or nursing staff). However, those following official sources like WHO and govt. websites as their main source of information were more likely to follow good practices for the prevention of disease (p-value 0.024) as compared to those taking information from other media (OR: 0.037 95% CI: 0.003-0.480; p-value 0.012). 88.7%, (n=367) claimed to follow good practices in a study from neighboring nation and 89.7% from China [13,19]. In Nepal, the practice score was 83.57% with 13.89 ± 5.33 out of 20 followed by 74% in Uganda (with age 40 years and higher education showing significant association with good practices).

Limitation

This study had some limitations in interpreting the results because COVID-19 is a novel coronavirus and new information is emerging with each passing day. The study was limited to limited regions and patients.

CONCLUSION

The predominant role of resident doctors and nursing staff in this crisis management will be a transformative learning experience, provided they are adequately trained to manage COVID-19-specific illness, making sure they understand how to apply these principles to the infected patient. Good knowledge promotes good behaviour thus, increasing the well-being of the patients and also limiting the spread of disease within the health care setting and to the community at large and also preparing those attending the patients for coping with crisis in a critical situation like this.

DECLARATIONS

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

- [1] WHO Coronavirus (COVID-19) Dashboard.
- [2] Wetsman, Nicole. "Health care workers are at high risk of catching COVID-19." *Vox Media Inc., Washington DC*, 2020.
- [3] Geldsetzer, Pascal. "Use of rapid online surveys to assess people's perceptions during infectious disease outbreaks: A cross-sectional survey on COVID-19." *Journal of Medical Internet Research*, Vol. 22, No. 4, 2020, p. e18790.
- [4] Harrison, Darren, et al. "Impact of the SARS-CoV-2 pandemic on health-care workers." *Hospital Practice*, Vol. 48, No. 4, 2020, pp. 161-64.
- [5] Medscape. "In memoriam: Healthcare workers who have died of COVID-19." 2021.
- [6] Geldsetzer, Pascal. "Knowledge and perceptions of coronavirus disease 2019 among the general public in the United States and the United Kingdom: A cross-sectional online survey." 2020.
- [7] Nepal, Richa, et al. "Knowledge, attitude and practice regarding COVID-19 among healthcare workers in Chitwan, Nepal." 2020.
- [8] Ayinde, Olunmi, et al. "A cross-sectional study on Oyo state health care workers knowledge, attitude and practice regarding corona virus disease 2019 (COVID-19)." 2020.
- [9] Abdel Wahed, Wafaa Yousif, et al. "Assessment of knowledge, attitudes, and perception of health care workers regarding COVID-19, a cross-sectional study from Egypt." *Journal of Community Health*, Vol. 45, No. 6, 2020, pp. 1242-51.
- [10] Papagiannis, Dimitrios, et al. "Assessment of knowledge, attitudes, and practices towards new coronavirus (SARS-CoV-2) of health care professionals in Greece before the outbreak period." *International Journal of Environmental Research and Public Health*, Vol. 17, No. 14, 2020, p. 4925.
- [11] Olum, Ronald, et al. "Coronavirus disease-2019: Knowledge, attitude, and practices of health care workers at Makerere University Teaching Hospitals, Uganda." *Frontiers in Public Health*, Vol. 8, 2020, p. 181.
- [12] Bhagavathula, Akshaya Srikanth, et al. "Knowledge and perceptions of COVID-19 among health care workers: Cross-sectional study." *JMIR Public Health and Surveillance*, Vol. 6, No. 2, 2020, p. e19160.
- [13] Saqlain, Muhammad, et al. "Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: A cross-sectional survey from Pakistan." *Journal of Hospital Infection*, Vol. 105, No. 3, 2020, pp. 419-23.

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- [14] Alshafi, Abdullah J., and Allen C. Cheng. "Knowledge, attitudes and behaviours of healthcare workers in the Kingdom of Saudi Arabia to MERS coronavirus and other emerging infectious diseases." *International Journal of Environmental Research and Public Health*, Vol. 13, No. 12, 2016, p. 1214
- [15] Huynh, Giao, et al. "Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City." *Asian Pacific Journal of Tropical Medicine*, Vol. 13, No. 6, 2020, p. 260.
- [16] Chang, De, et al. "Protecting health-care workers from subclinical coronavirus infection." *The Lancet Respiratory Medicine*, Vol. 8, No. 3, 2020, p. e13.
- [17] He, Xi, et al. "Temporal dynamics in viral shedding and transmissibility of COVID-19." *Nature Medicine*, Vol. 26, No. 5, 2020, pp. 672-75.
- [18] Paul, Gunchan, et al. "Assessment of knowledge gaps and perceptions about COVID-19 among health care workers and general public-national cross-sectional study." *Journal of Anaesthesiology, Clinical Pharmacology*, Vol. 36, No. 3, 2020, p. 337-44.
- [19] Zhang, M., et al. "Knowledge, attitude, and practice regarding COVID-19 among healthcare workers in Henan, China." *Journal of Hospital Infection*, Vol. 105, No. 2, 2020, pp. 183-87.
- [20] Maleki, Shokofeh, et al. "Knowledge, attitude and behavior of health care workers in the prevention of COVID-19." 2020.