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Original Research Article

Knowledge and attitude regarding coronavirus disease-2019: an online survey of nursing staff from a tertiary care centre

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ABSTRACT

Background: Currently, there is no specific antiviral treatment and preventive vaccine against COVID-19. Stringent practice of preventive measures is recommended as the only way out for protecting oneself. However, uncertainties galore and the prevention cannot be guaranteed due to paucity of knowledge about the epidemiology of COVID-19. Nurses are in an ideal position to participate or play a key role in taking initiatives to enhance patient safety during COVID-19 pandemic. Their knowledge will help to break the transmission chain.
Methods: In the present cross-sectional study an online questionnaire was used for data collection from nursing staff employed in a tertiary care centre/dedicated COVID hospital in central India. Universal sampling was done and the final sample size attained was 932. Data was cleaned, coded and analysis was done with statistical package for the social sciences (SPSS) version 20.0. Percentages, means and standard deviations (SD) were calculated and statistical tests in the form of t test and Wilcoxon rank-sum (Mann-Whitney) test were applied.
Results: Social-media and television (TV) were the main sources of knowledge about COVID-19 for the study participants as reported by 76.82% and 74.25% respectively. Study participants were aware about the common symptom of COVID-19 like cough, 127 (13.63%), fever 30 (3.22%), and diarrhoea 80 (8.58%).
Conclusions: Irrespective of their age and gender study participants had a fairly good knowledge about symptoms and prevention of COVID-19. Most of them were optimistic and had a positive attitude towards COVID-19 pandemic and resultant situation.

Keywords: Nursing staff, Nurses, COVID-19, Knowledge, Attitude

INTRODUCTION

Since its initial outbreak in China in December 2019, the COVID-19 disease has had a cascading effect worldwide.[1] Previous outbreaks of corona viruses *viz.* severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome-coronavirus (MERS-CoV) were similar to the present disease but had not resulted in the gigantic pandemic like COVID-19.[2] Two unique features of SARS-CoV-2 that distinguish it from other members of coronavirus family are its low pathogenicity and high transmissibility which subsequently also make it a difficult disease to control.[3] Possibly this could be the reason for its relentless spread leading to an unprecedented morbidity and mortality. It is primarily transmitted from infected symptomatic or asymptomatic people to others who are in close contact through respiratory droplets, by direct contact with infected ones or by contact with contaminated objects and surfaces.[4,5] Currently, there is no specific antiviral treatment and preventive vaccine against it. Therefore, guidelines recommend stringent practice of preventive measures as the only way out for protecting oneself.[6] However uncertainties galore and the prevention cannot be

guaranteed due to paucity of knowledge about the epidemiology of COVID-19.[7] As reported in India, coronavirus has infected multitude of doctors, nurses and paramedics across the country so far.[8] The implications of infection in health care workers (HCW) are serious and innumerable. Nurses' knowledge on prevention and protection procedures can help break the transmission chain of COVID-19 as they are in an ideal position to participate and play a key role in taking initiatives to enhance patient safety during pandemic.[9] The number of studies focusing on nurses during the COVID-19 outbreak worldwide is extremely low.[10-12] Nursing staff as a part of the medical team has not been assessed much for their knowledge and attitude about COVID-19. With this background and keeping in view the dearth of literature on this topic the present study was conducted with objectives to assess the knowledge and attitudes of nursing staff regarding COVID-19.

METHODS

Study setting and sample

The study setting for the present survey was a Government Medical College and Hospital, Nagpur which is a tertiary care centre and dedicated COVID hospital located in central India. In the present cross-sectional study, an online questionnaire was used for data collection from nursing staff working in various departments of the hospital making use of universal sampling method. Of the approximately 1500 nursing staff on roll, 1014 consented to participate in the study of which 932 filled the questionnaire completely and thus a sample size of 932 was achieved.

Study tool

The study questionnaire was prepared with the help of Google form. This method was preferred over printed proformas to avoid the transmission of SARS-CoV-2 through droplets and fomites. The questionnaire was pre-validated by two subject experts and a pilot study was conducted on 20 nurses for testing the validity of the proforma. Based on responses of the pilot study necessary modifications were made in the proforma. These responses were not included in the final analysis and were used to improve upon the quality of the questionnaire. The questionnaire link was shared with the study participants through WhatsApp and email. The study extended for a total duration of three months from March 2020 to May 2020 during the training sessions about COVID to the nursing staff.

The questionnaire was in English language and included three broad sections. First section comprised of the general information of the study participants related to demographic data on age, gender, department of work and years of experience (four questions). The second section included 12 questions of knowledge on various aspects of COVID-19 such as aetiology, transmission, clinical features, prevention, control etc. which were formulated after reviewing several articles on COVID and World Health Organisation (WHO) COVID-19 related questions and answers.[13] The responses to these questions were given a score of 1 for each correct answer and a score of zero for each incorrect answer. The third and concluding section dealt with their participants' attitude related to COVID-19 using a three-point Likert scale. For each of the eight statements, respondents were asked to state their level of agreement as agree (yes), disagree (no) and undecided (maybe).

Ethical considerations

Approval from the institutional ethics committee (IEC) was obtained. Ethical committee clearance number being 2037 dated 04 May 2020. An informed consent of study participants was taken after apprising them of the nature and purpose of the study. Voluntary participation in this study was encouraged and due care was taken to ensure anonymity and confidentiality.

Statistical analysis

Data was cleaned, coded and analysis was done with SPSS version 20.0. Mean±standard deviation (SD) was used for continuous data and frequency and percentage were computed for categorical data. These values were compared using statistical tests like t test and Wilcoxon rank-sum (Mann-Whitney) test and analysis of variance (ANOVA) as appropriate.

RESULTS

The total number of nursing staff who consented to participate in the study was 1014. Of these 932 returned completely filled questionnaire making a response rate of 91.91%. In the study the mean age of the nursing staff was 36.30 years (SD=7.78) with a range of 20 to 58 years as reported by them. Number of male nursing staff who participated in the study was 119 (12.77%) and that of female nursing staff was 813 (87.23%) as depicted in Figure 1. Four hundred and ninety-two (52.79%) study participants expressed that they think they are sufficiently informed about COVID-19, 195 (20.92%) thought they need to acquire more information about COVID-19 and remaining 245 (26.29%) were not sure if they know sufficient about COVID-19.

Source of the knowledge of the study participants (multiple responses) is represented in Figure 2. As obvious from the figure, social media and televisions (TV) were the main source of the current knowledge about COVID-19 for the study participants as opted by 76.82% and 74.25% respectively. Medical journals and text books were the main source of knowledge for only 13.95% and 6.44% of the study participants. Etiological agent of COVID-19 is a virus was correctly known to all the 932 (100%) participants.

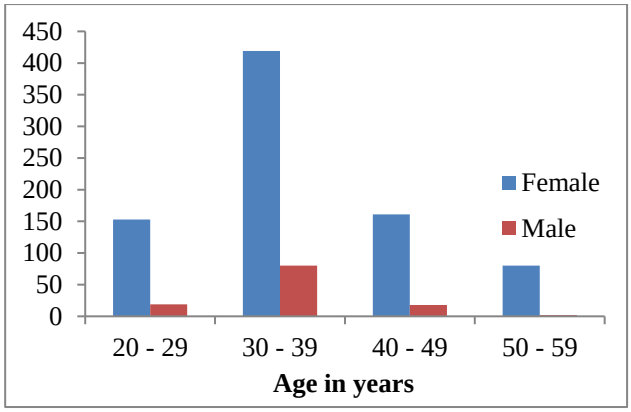

Figure 1: Socio demographic characteristics of study participants.

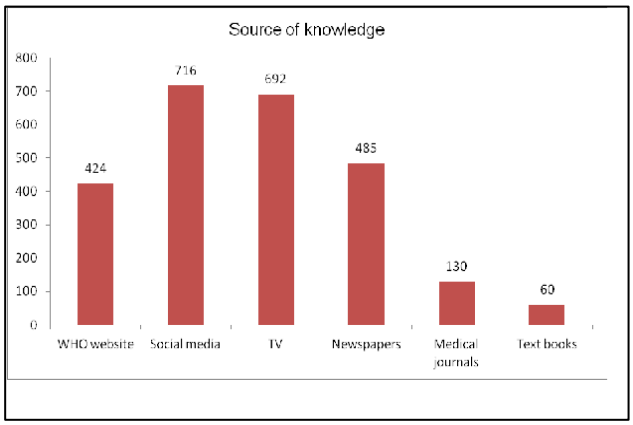

Figure 2: Source of knowledge of COVID-19.

The responses of the study participants about transmission of COVID-19 were noted. It was a multiple response type question wherein 777 (82.73%) knew that COVID-19 is transmitted from person to person by respiratory route followed by touch as knew by 381 (40.88%) nursing staff. However, 76 (8.15%) study participants mentioned that COVID-19 can be transmitted by eating flesh of infected animals and 22 (2.36%) even mentioned about blood transfusion as mode of spread for it.

In response to the question on what are symptoms of COVID-19 (to select more than one response), 924 (99.14%) responded fever, cough, difficulty in breathing. Common cold, cough as a symptom of COVID-19 was known to 127 (13.63%), only fever to 30 (3.22%), diarrhoea to 80 (8.58%) and other symptoms by 19 (2.04%) study participants.

In response to the closed ended question regarding incubation period of COVID-19, total 540 (57.94%) marked the correct answer of 2 days to 14 days. Remaining study participants were incorrect about the incubation period of COVID-19 of which 339 (36.37%) mentioned it as one hour to 14 days, 43 (4.61%) marked it as 14 days to 1 month and 10(1.07%) marked it as 2 weeks to 6 weeks. The knowledge about other aspects of COVID-19 such as vaccine and masks are tabulated in Table 1. The fact that healthcare workers are at a higher risk of infection was known correctly to 923 (99.03%) nursing faculty. Table 2 shows the knowledge of study participants about prevention and management.

Scoring for knowledge questions was used with a score of one for each correct response and a score of zero for an incorrect response. The mean score for this came out to be 8.69 with SD of 1.35 and the range being 4 to 12. Five hundred and fifty (59.01%) scored more than the mean score thus indicating a good level of knowledge. Of the remaining 382 scoring less than mean score, only 14 had a score of less than six. Age and gender wise knowledge of the nursing staff expressed in percentage is depicted in Figures 3 and 4 respectively. An attempt was made to find out whether knowledge of the study participants had any association with their age or gender. Age-groups were divided as less than 35 years of age and more than 35 years. Participants <35 years of age (492) had a mean score of 8.72 (SD=1.29) and that for >35 years of age (439) participants had a mean score of 8.69 (SD= 1.38). These mean scores were not found to be statistically different (t=0.1459 and p value=0.4420). Two-sample Wilcoxon rank-sum (Mann-Whitney) test was also applied to the age-wise scores and it revealed no difference (Z=0.033, p=0.9740). Mean scores of male nurses was 8.68 (SD=1.19) and female nursing staff was 8.70 (SD=1.35) which were also compared and no significant difference was noted for that (t=0.1623, p value=0.5645). Thus, age and gender did not influence the knowledge scores significantly.

An attempt was also made to detect if experience of the study participants played any role in their knowledge. To test this, they were divided in three subgroups of <10 years' experience in work amounting for 613 (65.77%), work experience of ten to 20 years having 214 (22.96%) nurses and remaining 105 (11.27%) with a work experience of >20 years having mean scores of 8.74 (SD=1.30), 8.56 (SD=1.43), and 8.76 (SD=1.32) respectively. Analysis of variance (ANOVA) revealed no significant difference in the mean scores of the study participants with regards to their experience (p value=0.248).

Attitude of the nursing faculty drives their practices and behaviour while in contact with patients and in general. In the present study nursing staffs' attitudes were assessed with the help of some close ended questions. Positive attitude of the nurses is well reflected from their responses details of which are shown in Table 3. A sizeable number (97.32%) agreed with the fact that health care workers must keep updating themselves with all the information about COVID-19 and 73.28% were willing to take the vaccine when available. Around eighty percent disagreed with the statement that a diagnosed case of COVID-19 should not be attended by doctor or nurse to prevent oneself from acquiring infection.

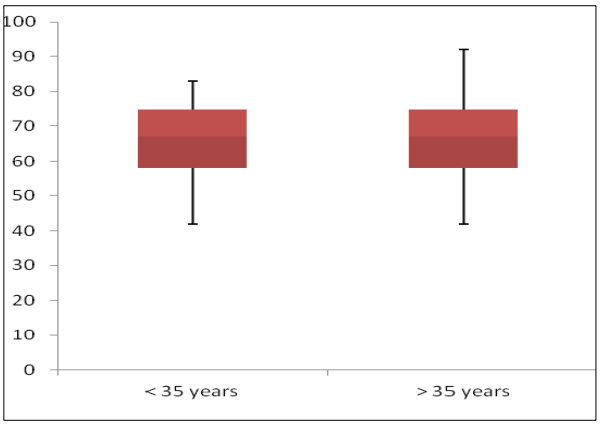

Figure 3: Age-wise correct responses.

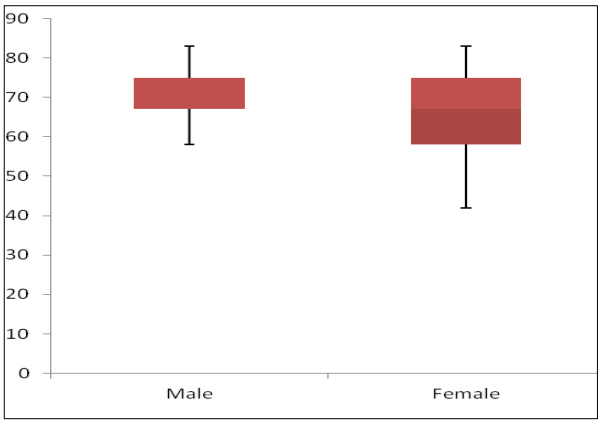

Figure 4: Gender -wise correct responses.

Table 1: Knowledge of nursing faculty about COVID-19.

Statement	Number (%)*		
	True	False	Do not know
COVID-19 vaccine is available to prevent against the disease	214 (22.96)	459 (49.25)	259 (27.79)
Only wearing mask is sufficient for preventing COVID-19	52 (5.58)	843 (90.45)	37 (3.97)
Washing hands with soap and water can help in prevention of disease transmission	888 (95.28)	38 (4.08)	6 (0.64)
Patients with underlying chronic diseases are at a higher risk of severe infection	896 (96.14)	16 (1.72)	20 (2.15)
Only wearing masks can provide 100% protection against nCoV	882 (94.63)	35 (3.76)	15 (1.61)
COVID-19 can lead to death of every infected patient	740 (79.40)	131 (14.06)	61 (6.55)

Table 2: Knowledge about prevention and management of COVID-19.

Question	Response	
	Number	%
What should be the duration of hand washing in seconds?		
10	29	3.11
20	612	65.67
30	107	11.48
40	184	19.74
For sanitising hands for prevention of COVID-19, what should be the percentage of alcohol in the sanitiser? (seconds)		
40	116	12.45
50	27	2.90
60	96	10.30
70	693	74.36
How can one treat COVID-19? (multiple option)		
Antibiotics	260	27.90
Antipyretics	255	27.36
Anti-malarial	402	43.13
Antiviral	235	25.21
Do not know	399	42.81

Table 3: Attitude of study participants.

Question/ statement	Number (percentage)*		
	Yes	No	May be
If COVID-19 vaccine is available, would you take it	683 (73.28)	162 (17.38)	87 (9.33)
Are you worried about one of your family members getting infected?	156 (16.74)	140 (15.02)	636 (68.24)

Continued.

Question/ statement	Number (percentage)*		
	Yes	No	May be
Are you worried that you can get infection?	630 (67.60)	126 (13.52)	176 (18.88)
Intensive treatment should be given to all diagnosed COVID-19 patients irrespective of the severity	258 (27.68)	588 (63.09)	86 (9.23)
Healthcare workers must update themselves with all the information about the COVID-19	907 (97.32)	9 (0.97)	16 (1.71)
A diagnosed case of COVID-19 should not be attended by doctor/nurse to prevent getting infected	130 (13.95)	752 (80.69)	50 (5.36)
Do you think the lockdown imposed in various states will help in stopping COVID-19 spread?	841 (90.24)	14 (1.50)	77 (8.26)
Imposing restrictions on public gatherings can help in control of COVID-19 spread	887 (95.17)	18 (1.93)	27 (2.90)

DISCUSSION

As the COVID-19 outbreak continues to evolve, we are learning more about this new virus every day.[5] Since nurses are in close contact with infected people, they play a key role in breaking the chain of transmission and thus their knowledge of 2019-nCoV can go a long way in prevention and treatment of COVID-19.

Social media and television were the main source of knowledge about COVID-19 for the study participants. These results are consistent with the findings of Bhagavathula et al and Saqlain.[15] However, in a study by Olum et al, the main sources of information about COVID-19 were information from international health organizations like the CDC and WHO, Ministry of Health and Uganda media sites.[16] In the current pandemic at global level it becomes vital because of the widespread pandemic of misinformation regarding COVID-19 which may lead to xenophobia in the world. Scientists and WHO officials have warned about such situations.[6] Therefore HCWs should consult reliable sources, such as guidelines and reports published by WHO and the US Centers for Disease Control and Prevention (CDC), to seek information regarding COVID-19.

In the present study, few misconceptions or myths regarding COVID-19 appear to be existing among the nursing staff as noticed from their incorrect responses about transmission and incubation period. Although this was noticed in one-tenths of the study participants with majority having correct knowledge, it demands that such incorrect knowledge should be replaced by correct details through trainings and discussions.

The current finding of good knowledge among nurses is in agreement with the findings of Giao et al and Saqllain et al who reported that 88.4% and 93.2% participants respectively had sufficient knowledge regarding modes of transmission and symptoms of COVID-19.[2,15] However, Nemati et al in a study carried out on Iranian nurses reported that only 56.5% respondents had sufficient knowledge regarding transmission, symptoms and treatment of COVID-19.[17] Good knowledge about the transmission may be due to the topic being discussed a lot these days. The difference from other researchers can be explained on the basis of the fact that the area of study is different. Moreover, as current study was carried out till May the nurses would have had the opportunity to acquire more information about COVID-19.

In the present study no significant association of age, gender or years of work experience could be established with the mean scores of knowledges of the study participants. This could be because the disease is a novel one and as thus all age groups and both the genders had almost similar knowledge about it.

Positive attitude about COVID-19 situation was observed in many of the study participants. This observation is similar to that of another study carried out in nurses and other health care workers in China.[2] However, there remains a significant concern that they could acquire the coronavirus infection which they may transmit to other members of family, particularly their parents. Good knowledge has a higher probability of positive attitudes.[18] This is reflected in the present study also. The positive attitude on the part of nurses is beneficial to the health care force as the nurses while executing their duties spend more time with the patients. Their positive attitude can go a long way in acting as a healer and alleviating the stress of the COVID-19 patients.

Because of COVID restrictions it was not possible to access study participants personally hence the data was collected through online platform. The study also has the inherent limitations of a typical cross-sectional study, however the authors tried to cover a large sample size to make the results more valid.

CONCLUSION

Irrespective of their age and gender study participants had a fairly good knowledge about symptoms and prevention of COVID-19. However, the findings of this study indicate knowledge gaps between the amounts of information available about COVID-19 and the depth of knowledge among nursing staff, particularly about the mode of transmission and incubation period. Most of them were

optimistic and had a positive attitude towards COVID-19 pandemic and resultant situation.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Modi PD, Nair G, Uppe A, Modi J, Tuppekar B, Gharpure AS. COVID-19 Awareness among healthcare students and professionals in Mumbai metropolitan region: A Questionnaire-Based Survey. Cureus. 2020;12(4):e7514.
2. Huynh G, Nguyen TNH, Tran VK, Vo KN, Vo VT, Pham LA. Knowledge and attitude toward COVID-19 among healthcare workers at district 2 hospital, Ho Chi Minh City. Asian Pac J Trop Med. 2020;13(6):260-5.
3. Liu J, Liao X, Qian S, Yuan J, Wang F, Liu Y, et al. Community transmission of severe acute respiratory syndrome coronavirus 2, Shenzhen, China. Emerg Infect Dis. 2020;26(6):1320-3.
4. Jiang S, Shi Z, Shu Y, Song J, Gao GF, Tan W, et al. A distinct name is needed for the new coronavirus. Lancet. 020;395(10228):949.
5. Coronavirus disease 2019 (COVID-19) Situation Report – 73. Available at: file:///F:/COVID% 2019%20nurses'%20training/publications/Awarenes s%20nurses/references/20200402-sitrep-73-covid-19.pdf. Accessed on 15 June 2020.
6. CDC. Coronavirus disease 2019 (COVID-19). 2020. Available at: https://www.cdc.gov/coronavirus/ 2019-ncov/about/transmission.html. Accessed on 15 June 2020.
7. Vaishya R, Vaishya A. Vihar S. Rapid Response: The plight of Health Care Workers in India during COVID-19 pandemic. BMJ. 2020;369:m1324.
8. COVID-19 Infects 548 Doctors, Nurses, Paramedics Across India. Available at: https://www.ndtv. com/india-news/covid-19-infects-548-doctors-nurses-paramedics-across-india-2224349. Accessed on 15 June 2020.
9. McHugh MD, Stimpfel AW. Nurse reported quality of care: a measure of hospital quality. Res Nursing Health. 2012;35(6):566-5.
10. Kamineni SRT, Pandian B, Poonguzhali S, Poongodi C, Udayakumari MC, Vasantha PJ, et al. Knowledge of COVID-19 among nursing and Allied health care professionals working in tertiary care hospital. Int J Res Pharm Sci. 2020;11(1):103-9.
11. Joshi KP, Madhura L, Jamadar D. Knowledge and awareness among nursing students regarding the COVID-19: a cross sectional study. Int J Comm Med Public Health. 2020;7(7):2518-21.
12. Suphi A, Aydin B. COVID-19 Knowledge Level Research in Nurses. J Surg Res. 2020;3(3):198-203.
13. COVID-19 Questions and answers. WHO. Available at: http://www.emro.who.int/health-topics/corona-virus/questions-and-answers.html. Accessed on 15 June 2020.
14. Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari D. Novel Coronavirus (COVID-19) Knowledge and Perceptions: A Survey of Healthcare Workers. 2020;6(2):e19160.
15. Saqlain M, Munir MM, Rehman SU, Gulzar A, Naz S, Ahmed Z, et al. Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: a cross sectional survey from Pakistan. J Hosp Infect. 2020;105:419-23.
16. Olum R, Chekwech G, Wekha G, Nassozi DR, Bongomin F. Coronavirus Disease-2019: Knowledge, Attitude, and Practices of Health Care Workers at Makerere University Teaching Hospitals, Uganda. Front Public Health. 2020;8:181.
17. Nemati M, Ebrahimi B, Nemati F. Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. Arch Clin Infect Dis. 2020;15;e102848.
18. Khan MU, Shah S, Ahmad A, Fatokun O. Knowledge and attitude of healthcare workers about Middle East Respiratory Syndrome in multispecialty hospitals of Qassim, Saudi Arabia. BMC Public Health. 2014;14:1281.

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