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COVID-19 Knowledge and Perception among Budding Nurses: A Questionnaire-Based Survey

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ABSTRACT

Background and Aim: In COVID-19 pandemic, a global emergency, there is a scarcity of resources including workforce in health-care system. Budding nurses as additional workforce are being utilized in COVID-19 units, where their knowledge and perception about COVID-19 plays a key role in patient care as well as for their safety. There is a paucity of regional data on knowledge and perception of budding nurses about COVID-19. The present study was conducted with an aim to assess the knowledge and perception of budding nurses about COVID-19. **Materials and Methods:** In this online survey, 380 budding nurses participated. A 26-item semi-structured (9) knowledge and (10) perception-based questionnaire was responded by participants. Descriptive and inferential statistics were used to analyze the findings. **Results:** A significant number of participants were passably aware of the basic element of COVID-19, that is, etiological factor, incubation period, clinical symptoms, transmission, prevention, and treatments and majority (52.89%) budding nurses have shown positive perception toward COVID-19. **Conclusion:** The findings of this study revealed that knowledge and perception of budding nurses were significantly adequate and positive about COVID-19; however, in some areas, there was a substantial gap in knowledge; hence, periodic educational sessions regarding COVID-19 to budding nurses will help in curtailing the gap and they can be utilized as a better resource in a time of pandemic to overcome the shortage of manpower.

Keywords: Budding nurses, COVID-19, Knowledge, Perception

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Introduction

COVID-19 started in December 2019, like a viral outbreak in Wuhan city, Province of China. About 40 cases of pneumonia with unknown etiology were reported and India reported its first COVID-19 case on January 30, 2020, and numbers began to rise gradually.[1] The World Health Organization (WHO) along with Chinese authorities started working together and the etiological agent was soon established to be a new virus and was named novel coronavirus (2019).[2] Coronavirus (CoV) infections are emerging respiratory viruses that are known to cause illness ranging from the common cold to severe acute respiratory syndrome. COVID-19 pandemic originated from an animal market in Guangdong Province of China and subsequently spread to over 220 countries of the globe.[3] COVID-19 is spread by human-to-human transmission through droplet, feco-oral, and direct contact and has an incubation period of 2–14 days. To date, no antiviral treatment or vaccine has been explicitly

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recommended for COVID-19.[4] Therefore, applying preventive measures to control COVID-19 infection is the most critical intervention.[5]

COVID-19 infection is a highly contagious and has affected a large population all across the globe, the total number of deaths caused due to this virus has increased sharply. As of now dated, May 6, 2020, a total of 3,517,345 confirmed cases have been reported from 220 countries of the world; also, there are 243,401 confirmed deaths across the globe, as reported by the WHO,[6] and in India, 31,967 active cases with 1583 deaths were reported till the time this research paper was in process of drafting.[7]

Health care workers (HCWs) are the primary health-care providers in contact with patients and are an important source of exposure to infected cases in health-care settings; thus, HCWs are expected to be at high risk of infection.[8] However, along with HCWs, student nurses pursuing General nursing and midwifery (GNM), B.Sc (N), and M.Sc (N) are also posted in various health-care facilities and in community setting as an additional workforce to combat the COVID-19; hence, they are also expected to be at high risk to get infected with virus without adequate knowledge and poor perception about COVID-19. In many states of India, due to shortage of workforce, budding nurses are being utilized for different tasks, like in community survey or as a helping hand in COVID-19 units. Therefore, likelihood of acquiring the infection is higher among them. It is, therefore, of paramount importance that budding nurses involved directly or indirectly caring of COVID-19 patients should equipped with adequate knowledge about all aspect of disease, that is, clinical manifestations, diagnosis, proposed treatment, and established preventive strategies.[9] COVID-19 knowledge is helpful for encouraging an optimistic attitudes and maintaining safe practice;[10] also, knowledge can influence the perceptions of budding nurses due to their past experiences and beliefs. Indeed, poor knowledge and perception can delay recognition and handling of potential COVID-19 patients during the pandemic period. However, the level of knowledge and perceptions of budding nurses toward COVID-19 remains unclear as very limited studies are conducted on knowledge and perception. In this regard, the COVID-19 pandemic offers a unique opportunity to investigate the level of knowledge and perceptions of budding nurses during this global health disaster. Therefore, this questionnaire-based online survey was planned to explore the knowledge and perception of budding nurses in India.

Materials and Methods

A web-based, cross-sectional study was conducted using a survey instrument to obtain responses from budding nurses during the 1st week of April 2020. A 26-item survey instrument was developed using the WHO and CDC course materials on COVID-19. Snowball sampling technique was used to collect the information from participants. A total of 388 participants were enrolled in online survey, out of which 380 have given their consent for participation. An online semi-structured questionnaire was developed using Google Forms, with a consent form attached to it. The link of the questionnaire was sent through emails, WhatsApp, and other social media to the contacts of the investigators. The participants were encouraged to roll out the survey to as many people as possible. Thus, the link was forwarded to people apart from the first point of contact and so on. On receiving and clicking the link, the participants got auto-directed to the information about the study and informed consent. After they accepted to take the survey, they filled up the demographic details. Then, a set of several knowledge and perception-based questions appeared sequentially, which the participants were to answer. In this web-based online survey, participants with access to the internet could participate in the study. Participants with age more than 17 years pursuing diploma, baccalaureate, or masters in nursing, able to understand English and willing to give informed consent were included in the study. The data collection was initiated on April 30, 2020, at 6 PM IST and closed on May 6, 2020, at 6 PM IST. We were able to collect data from across various states of India. Ethical permission was obtained from Institute Ethical Committee (IEC) wide letter no. (GU/IEC/20/92).

Content of the survey instrument and scoring system

The survey comprised 26 closed-ended questionnaires and took approximately 5 min to complete. The 26-item questionnaire was divided into three parts: Participant demographic characteristics and related information (8 items), knowledge-based questionnaire (09 items), and perception questionnaire (10 items). We used Google Forms an online survey tool to distribute the survey, and participants were asked to spare few minutes to read, comprehend, and answer all the questions. Knowledge was assessed by questions focusing on COVID-19, that is, etiological factor, incubation period, clinical symptoms, transmission, prevention, and treatments. Each response was scored as "1" (correct) and "0" (wrong), with scores ranging from 1 to 10. Perceptions toward COVID-19 were assessed using 10 items. A 5-point Likert scale was developed to assess the perception where participants were supposed to rate the question from strongly disagree to strongly agree. Data were coded and entered to Excel sheets and Statistical Package for the Social Sciences (SPSS 21.0) was used to for statistical analysis. Descriptive and inferential statistics have been used in the study to analyze the findings.

Results

An online survey, related to knowledge and perception of budding nurses during the corona pandemic, was conducted

in the Indian population. A total of 388 budding nurses participated out of which 380 (97.93%) responses were recorded. All the participants were above 17 years of age and Indian origin. The study included only those participants who were pursuing nursing programs, that is, GNM, B.Sc Nursing, M.Sc Nursing in any specialty, and Diploma in Nursing and had access to the internet. More than two-third (75.26%) of participants were in the age group of 17–22 years followed by 18.16% were in the age group of 23–28 years. Majority of participants (61.05%) were female while more than half (66.84%) of them were pursuing B.Sc Nursing followed by about less than one-fourth (13.95 %) were in GNM. The participants belong to nine states or union territories of the country with maximum representation (57.53%) were from Gujarat, followed by 29.74% of them were from Rajasthan and 6.58% and 2.63% were from Maharashtra and Madhya Pradesh state. Majority of participants (61.84%) were from urban domicile and about two-third (72.11%) of participants were not caring any of suspected or confirmed COVID-19 patients while about less than one-third (18.68%) were involved in caring for COVID-19 patients. Less than half (34.47%) of participants reported social media as a primary source of knowledge of COVID-19, followed by webinar or seminar (29.47%), textbooks or journals (21.32%), and friend or family (14.74%) [Table 1].

A significant number of participants were passably aware of the basic element of COVID-19, as shown in Table 2. Mean knowledge score was 6.7 ± 0.87. Out of total participants, about more than two-third (89.21%) of participants considered that COVID-19 is a contagious disease and more than half (72.63%) responded that virus is the primary cause for transmission of COVID-19 disease. More than two-third (79.21%) of participants acknowledged that incubation period of COVID-19 is 2–14 days while majority (89.74) of them responded that fever, fatigue, dry cough, and headache are the main clinical manifestations of COVID-19 disease.

Significant number of participants (58.95%) responded that yet there is no treatment for COVID-19 disease and more than half (65%) consider that COVID-19 can be transmitted directly through contact with infected surfaces. Majority (69.21%) of them considered that disease can be transmitted directly through contact with infected individuals by handshaking, hugging, kissing, and almost most of participants (96.5%) regarded that people should avoid going to crowded places such as train stations and avoid taking public transportation to prevent the infection, while more than one-third (89.47%) agree to fact that hand hygiene, covering nose and mouth while coughing, and avoiding sick contacts can help in the prevention of COVID-19 infection [Table 2].

In terms of knowledge score, majority of participants (41%) were having good knowledge, whereas about more than one-third (33%) of participants having average knowledge followed by 26% were having poor knowledge about COVID-19 [Table 3].

Table 1: Distribution of the study participants according to sociodemographic characteristics, *n*=380

Variable	*f* (%)
Age (in years)	
17–22	286 (75.26)
23–28	69 (18.16)
29–34	14 (3.68)
>35	11 (2.89)
Gender	
Male	148 (38.95)
Female	232 (61.5)
Programme pursuing	
General nursing and midwifery	53 (13.95)
B.Sc Nursing	254 (66.84)
M.Sc Nursing	37 (9.74)
Other (diploma in nursing)	36 (9.47)
State of domicile	
Rajasthan	113 (29.74)
Gujarat	219 (57.63)
Maharashtra	25 (6.58)
Madhya Pradesh	10 (2.63)
Karnataka	3 (0.79)
Delhi	4 (1.05)
West Bengal	3 (0.79)
Odisha	2 (0.53)
Jammu and Kashmir	1 (0.26)
Current residing area	
Rural	145 (38.16)
Urban	235 (61.84)
Are you caring any COVID-19 suspected or confirmed patient	
Yes	71 (18.68)
No	274 (72.11)
Maybe	35 (9.21)
Primary source of knowledge about COVID-19	
Textbooks/journals	81 (21.32)
Seminar/webinar	112 (29.47)
Social media	131 (34.47)
Friends/family	56 (14.74)

Majority of participant (82.9%) consider that COVID-19 is transmitted through air, contact, and fecal oral routes while less than one-third (7.90%) shown disagreement to this. More than two-third (83.51) believe that at present, there is no cure for COVID-19, but early symptomatic and supportive treatment can help in recover from COVID-19 infection while less than one-third (7.63%) shown disagreement.

Majority of participants (82.10%) consider that not all people but the elderly with comorbidity such as hypertension and diabetes are at high risk of getting infection while more than half (70%) are disagree that animals are the source of COVID-19 infection.

Majority (77.1%) of participants disagree to fact that person with COVID-19 cannot infect the virus to others when fever is not present while more than two-third (89.21) of participants agree to fact that wearing of mask can prevent the spread of infection among community people. Majority (82.89%) of participants disagree that no measures are

required for children and young adults for COVID-19 infection and about more than two-third (89.47%) perceive that COVID-19 is fatal. Majority (71.84%) of participants agreed that isolation and symptomatic treatment of person are effective ways to reduce the spread the chain of infection while 92.37% of participants disagree to fact that 5 days quarantine is effective to treat the COVID-19 infection [Table 4].

Majority of participants (52.89%) have shown positive perception while about more than one-third (36.32%) of participants perception was negative toward COVID-19 followed by about less than one-fourth (10.79%) of participants were having neutral perception toward COVID-19 [Table 5].

Discussion

At present, COVID-19 is a pandemic and a global emergency where more than 220 countries are struggling to deal with it and every individual is at verge to get infected with COVID-19 that raising tensions for everyone, including for HCWs and health-care facilities, an important question arises that budding nurses can be utilized as an additional workforce to overcome the shortage of HCWs, but they should be equipped with adequate knowledge before being posted in COVID-19 and non-COVID-19 units. Therefore, this study was intended to assess the knowledge and perceptions of the budding nurses about COVID-19. Surprisingly, about more than one-third of participants (34.47%) reported social media as a primary source of knowledge, being a nursing professional one should not rely on social media information due to the fact that information is not validated and sometime facts and figures are fabricated. Although, many online seminars, webinars, and online short-term courses are being conducted by various organizations of the country during this pandemic period on COVID-19 and budding nurses can participate in such webinars to update their knowledge.

The present study findings demonstrated that significant number of participants was aware of the various aspects of COVID-19 disease with mean±SD 6.7 ± 0.87, that is, incubation period, causative factors, mode of transmission, and prevention and supportive treatment of disease, these results are consistent with similar study conducted by Roy *et al*.[2] where considerable number of responders was aware

Table 2: Knowledge of the study participants about COVID-19, *n*=380

S. No.	Knowledge questioners	Correct response and %	GNM *n*=53	B.Sc(N) *n*=254	M.SC(N) *n*=37	Others *n*=36
1	COVID-19 is contagious a disease	339 (89.21)	44 (83.02)	232 (91.34)	33 (89.19)	30 (83.33)
2	Which of the following is the primary cause of COVID-19?	276 (72.63)	23 (43.40)	201 (79.13)	33 (89.19)	19 (52.78)
3	What is the incubation period of COVID-19	301 (79.21)	36 (67.92)	212 (83.46)	29 (78.38)	24 (66.67)
4	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and headache	341 (89.74)	42 (79.25)	243 (95.67)	31 (83.78)	24 (66.67)
5	Which of the following is the definitive treatment for COVID-19?	224 (58.95)	17 (32.08)	167 (65.75)	29 (78.38)	11 (30.56)
6	The disease can be transmitted directly through contact with infected surfaces	247 (65)	24 (45.28)	169 (66.54)	31 (83.78)	23 (63.89)
7	The disease can be transmitted directly through contact with infected individuals (handshaking, hugging, and kissing)	263 (69.21)	29 (54.72)	181 (71.26)	27 (72.97)	26 (72.22)
8	To prevent the infection, people should avoid going to crowded places such as train stations and avoid taking public transportation	365 (96.05)	49 (92.45)	229 (90.16)	35 (94.59)	34 (94.44)
9	Hand hygiene, covering nose and mouth while coughing, and avoiding sick contacts can help in the prevention of COVID-19 transmission	340 (89.47)	40 (75.47)	238 (93.70)	31 (83.78)	33 (91.67)

*Others (PB B.Sc Nursing or any post-nursing diploma)

Table 3: Knowledge score of the study participants about COVID-19, *n*=380

Knowledge score	GNM *n*=53	B.Sc (N) *n*=254	M.Sc (N) *n*=37	Others *n*=36
Good	21 (40)	111 (44)	14 (38)	10 (28)
Average	18 (34)	82 (32)	13 (35)	14 (39)
Poor	14 (26)	61 (24)	10 (27)	12 (33)

Table 4: Perception of the study participants about COVID-19, *n*=380

S. No,	Perception	SD	D	N	A	SA
1.	COVID-19 is transmitted through air, contact, fecal-oral routes	6 (1.58%)	24 (6.32%)	35 (9.2%)	101 (26.58%)	214 (56.32%)
2.	At present, there is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from COVID-19 infection	10 (2.63%)	16 (4.21%)	37 (9.73%)	68 (17.89%)	249 (65.53%)
3.	Not all people just elderly, have chronic illnesses and comorbidity such as diabetes and HTN are high risk to get an infection	7 (1.84%)	22 (5.79%)	39 (10.26%)	102 (26.84%)	210 (55.26%)
4.	Animals are source of infection	146 (38.42%)	120 (31.58%)	64 (16.84%)	31 (8.16%)	19 (5%)
5.	Persons with COVID-2019 cannot infect the virus to others when fever is not present	162 (42.63%)	131 (34.47%)	68 (17.9%)	14 (3.68%)	5 (1.32%)
6.	Community people can wear general medical masks to prevent the spread of infection by the COVID-19 virus	7 (1.84%)	16 (4.21%)	18 (4.74%)	79 (20.79%)	260 (68.42%)
7.	It is not necessary for children and young adults to take measures to prevent the infection of the COVID-19 virus	203 (53.42%)	112 (29.47%)	42 (11.05%)	14 (3.68%)	9 (2.37%)
8.	COVID-19 is fatal	2 (0.53%)	7 (1.84%)	31 (8.16%)	139 (36.58%)	201 (52.89%)
9.	Isolation and symptomatic treatment of person, who are infected with the COVID-19 virus are effective ways to reduce the spread the chain of infection	14 (3.68%)	29 (7.63%)	64 (16.84%)	131 (34.47%)	142 (37.37%)
10.	People who have contact with someone infected with the COVID-19 virus 5 days quarantine is effective for such people to treat the infection	249 (65.53%)	102 (26.84%)	12 (3.16%)	14 (3.68%)	3 (0.79%)

*SA: Strongly agree, A: Agree, N: Neutral, D: Disagree, SD: Strongly disagree

Table 5: Perception score of the study participant regarding COVID-19, *n*=380

Perception	F	%
Positive perception	201	52.89
Neutral	41	10.79
Negative perception	138	36.32

of the basic elements of the disease, that is, virus spreads through multiple modes such as touching, kissing, sneezing, and food, mode of transmitting of virus, COVID-19 as a highly contagious disease, washing hands frequently could stop the spread of infection and symptoms of disease. Bhagavathula *et al*.[11] reported that the majority of the participants had insufficient knowledge about COVID-19 which is inconsistent with the present study findings. The study conducted by Zhou *et al*.[11] on HCWs in China also reported the similar findings where majority of participants (89%) demonstrated sufficient knowledge of COVID-19. Further, the findings were in accordance with similar study done by Nemati *et al*.[9] where more than half of (56.5%) the participants were having good knowledge regarding COVID-19 which they rated high as 6.12 (range of 1–10). In a cross-sectional online study conducted in the United States and United Kingdom, among general public by Geldsetzer[13] reported that participants were having good knowledge of modes of disease transmission and common symptoms.

In the present study, majority of participants (52.89%) had shown a positive perception while 36.32% shown negative perception about COVID-19 and majority of participants (82.9%) perceive that COVID-19 is transmitted by air, fecal by touch which is consistent with a study done by Mannan DK *et al*.[14] where 76.6% of participants agreed to same. However, about more than two-third (83.51%) of participants believe that there is no cure for COVID-19 so far. While 82.10% of participants perceive that not all people but the elderly with comorbidity are high risk to get infection. These findings are in line to the study done by Olum *et al*.[15] where majority of participants (80%) perceived the same. It is worth mentioning that 70% of participants were disagree to fact that animal is source of infection, which is contrary to a study done by Mannan *et al*.[14] where 56.5.2% of participants had shown agreement that COVID-19 is originated from animals. About more than three-fourth of participants (79.10%) perceive that in the absence of fever, COVID-19-positive patient cannot infect the virus to others.

About 88.21% of participants agreed to that community people can wear general mask to prevent the spread of infection while 82.89% of participants disapprove that COVID-19 precautionary measures are not required for children and young adults for the spread of infection also 84.47% perceive that COVID-19 is fatal which is not in accordance with a similar study done by Bhagavathula *et al*.[11] where majority of participants (85.5%) consider COVID-19 disease is non-fatal.

In relation to reduce the spread of infection, 71.84% of participants perceive that isolation and symptomatic treatment are the effective ways which is in accordance with a similar study done by Bhagavathula *et al*.[11] where majority of participants (61%) consider that isolation is effective way to treat infection. While in the present study, 92.37% of participants disapprove that 5 days quarantine is effective

in treating COVID-19 infection which is in line with the study done by Zhou *et al*.[13] majority of participants (61%) consider that 2–14 days are effective in treating infection.
To the best of our knowledge, this study is first in India investigating the knowledge and specially the perception of budding nurses about COVID-19 so we could find very less literature to compare the results specially the perception.

Limitations

Due to the limitation in representativeness of the sample, more studies are warranted to investigate the knowledge and perception of COVID-19 among budding nurses.

Conclusion

The findings of this study establish that knowledge of budding nurses is adequate about COVID-19, and they have shown positive perception too. However, in some areas, there is a significant gap in knowledge, which is unfortunate because the surge of COVID-19 is globally devastating, and an enormous number of resources are available online also information about COVID-19 is being circulated in form of webinars and online short-term courses by many premiere institutions of county and Ministry of Health and Family Welfare has taken various measures to spread the information about COVID-19.

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