Knowledge and Practice among Staff Nurses Regarding COVID-19: A Cross-sectional Survey from Punjab

Ramandeep Kaur Bajwa1, Sushil Kumar Maheshwari2

1Department of Mental Health Nursing, Government Guru Nanak Dev Hospital, Amritsar, Punjab, India, 2Department of Mental Health Nursing, Baba Farid University of Health Sciences, Faridkot, Punjab, India

Abstract

Introduction: Coronavirus disease 2019 (COVID-19) is a highly transmittable. Punjab faces sudden hike in number of positive cases including number of staff nurses also acquired infection. Therefore, the aim of study is to assess knowledge and practice among staff nurses in Punjab regarding COVID-19.

Methods: An online survey-based study was conducted during the month of August to September among nurses. A self-administered questionnaire comprised of three sections (Demographics, knowledge, and practice) was used for data collection. Total sample size taken for study was 220 staff nurses.

Results: Findings showed that staff nurses have good knowledge (78.2%) and good practice (97.7%) regarding COVID-19. Use of limited face mask in crowds and do not throwing the used tissues in trash are the major barriers in infection control practice. Factors such as qualification ($\chi^2 = 22.805$) were significantly associated with good knowledge at 0.05 level of significance. Furthermore, there was a significant relationship between qualification ($\chi^2 = 9.314$) and experience ($\chi^2 = 11.635$) with practice of staff nurses regarding COVID-19 at the 0.05 level of significance.

Conclusion: Staff nurses in Punjab have good knowledge, reflected by good practice. Yet, there are areas where gaps in knowledge and practice were observed. To effectively control infection spread, well-structured training programs must be launched by government targeting all kinds of health-care professionals to raise their existed knowledge.

Keywords: Knowledge, practice, COVID-19, staff nurses

INTRODUCTION

In earlier December, first case of pneumonia of unknown cause originated in Wuhan, capital city of Province Hubei, China, and on December 31, 2019, with emergence of more such cases, Wuhan gained attention by the World Health Organization (WHO).[1] The pathogen identified was named as novel coronavirus (2019-nCoV), currently called as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), an envelope and single stranded RNA virus[2] which has phylogenetic resemblance to SARS-COV-1.[3] Due to rapid spread of this deadly virus from epicenter to number of countries, the WHO declared it as public health emergency of international concern on January 30, 2020. Later, due to uncased fast spread, severity of illness, the continual escalation in number of affected countries, cases, and causalities, the WHO declared coronavirus disease 2019 (COVID-19) a global pandemic on March 11, 2020.[4]

The COVID-19 pandemic was confirmed to have spread to the Indian state Punjab on March 09, 2020, when an Indian man returning from Italy was tested positive. As of February 20,
2021, the Ministry of Health and Family Welfare has confirmed a total of 177,376 cases, including 5732 deaths and 169,002 recoveries in Punjab. The economy of Punjab has been severely affected by the COVID-19 pandemic.[5]

COVID-19 transmits from person to person by droplets when an infected person sneezes and by direct contact and virus has an incubation period of 4–14 days.[6] Elderly and patients who suffered with chronic medical conditions such as diabetes and cardiovascular diseases are more likely to get severe infection.[7] The main manifestations of COVID-19 are fever, dry cough, dyspnea, myalgia, fatigue, hypolymphaemia, and radiographic evidence of pneumonia. Complications (e.g., acute respiratory distress syndrome, arrhythmia, shock, acute cardiac injury, secondary infection, and acute kidney injury) and death may occur in severe cases.[1-7] At present, no antiviral therapy or vaccine is explicitly recommended for COVID-19 and implementation of preventive measures to control COVID-19 is the mainstay critical intervention.[8]

Health-care professionals of all levels and kinds are primarily involved in catering patients of this highly transmittable pathogen. COVID-19 has posed serious occupational health risk to the staff nurses owing to their frequent exposure to infected individuals.[9] Protection of staff nurses and prevention of intra-hospital transmission of infection are important aspects in epidemic response and this requires that staff nurses must have updated knowledge regarding source, transmission, symptoms, and preventive measures.[10] The literature suggest that lack of knowledge and misunderstandings among staff nurses leads to delayed diagnosis, spread of disease, and poor infection control practice.[11]

India has approved the AstraZeneca vaccine developed by Oxford University and manufactured by Serum Institute of India. Covishield (Indian name of Oxford vaccine) got the green light from Drugs Controller General of India (DCGI). Covaxin: Bharat Biotech Ltd developed COVAXIN vaccine is under Phase 3 trials including Punjab’s three Government Medical Colleges with the help of ICMR from October 15, 2020. Two portions of the inactivated virus infusion given to the members (0 and 28 days) as a component of the Phase-3 human preliminaries. Covaxin developed by Bharat Biotech got approval for emergency use in India by DCGI.[5]

Punjab Chief Minister Captain Amarinder Singh on Tuesday launched ‘Mission Fateh as part of state battle against COVID-19. “Mission Fateh represents the determination of the individuals of Punjab to end the spread of the novel coronavirus through control, collaboration, and sympathy.

As on July 21, 2020, CM Capt Amrinder Singh has approved the permission to establish a plasma bank as inventory to treat the severely ill patient by plasma therapy and it is established at Rajindra Hospital, Patiala. Two machines have been set up in the hospital as part of Mission Fateh.[9]

Maharashtra, Gujarat, and West Bengal have the maximum number of COVID positive staff nurses in the country and also the highest fatality rate, the Trained Nurses Association of India (TNAI).

TNAI, the largest nursing association in the country, released data for the first time since the beginning of the pandemic, indicating that 509 nursing staff was infected and 20 died while providing care to COVID patients.

According to the data, West Bengal reported 111 COVID positive nurses with three fatalities; Maharashtra has 75 cases with six deaths and Gujarat 96 cases with four deaths. Mizoram, Chhattisgarh, Kerala, and Uttar Pradesh have the least recorded COVID case-load among nursing staff with Rajasthan, Telangana, and Uttar Pradesh registering the lowest reported fatalities.[12]

COVID-19 healthcare worker (HCW) infections and deaths are tragedies for the individuals, their families, colleagues, and an existential crisis for HCWs and for local and national health-care infrastructures. China reported that 3387 HCWs were infected with this novel coronavirus. Of this number, 23 died, including 21 who were physicians and surgeons, one nurse, and one technician.[13] A survey conducted from 37 nations on HCW infections and deaths due to COVID-19 revealed that in India 108 doctors (1073 got infected), two staff nurses (144 got infected) died due to COVID-19.[14]

Amidst to current pandemic, the WHO has issued several guidelines and also started online courses and training sessions to raise awareness and preparedness regarding prevention and control of COVID-19 among health-care professionals.[15] Although educational campaigns have increased their awareness regarding COVID-19, it remains unclear to what extent this knowledge can be put into practice and to what extent this practice actually reduces COVID-19 infection spread. Knowledge, attitude, and practice (KAP) survey provides a suitable format to evaluate existing programs and to identify effective strategies for behavior change in society.[16] Therefore, the present study aimed to identify the current status of knowledge and practices regarding COVID-19 among staff nurses in Punjab. In addition, the study will highlight the information sources utilized by staff nurses.

**Methods**

**Study design**

A cross-sectional survey-based study was conducted during the month of August to September 2020, days of strict lockdown to implement social distancing to avoid spread of pandemic. As it was not feasible to conduct population-based survey in this critical condition, the investigators selected an online data collection method.

**Sampling, study population, and data collection method**

Survey was started on 28 August 2020, and response acceptance was closed (September 28, 2020) when required sample size was achieved.

The study population eligible for participation in this survey were staff nurses. A questionnaire was designed on Google
forms and link generated was shared on WhatsApp groups of staff nurses. Link was also shared personally to staff nurses who were in contact list of investigators. Informed electronic consent was taken from all the participants in the study.

**Measure**

A survey instrument was designed based on extensive literature review and course material regarding emerging respiratory diseases including COVID-19 by the WHO.[18]

The questionnaire was consisted of questions assessing demographics, knowledge, and practice toward COVID-19. Demographic characteristics included were gender, age, experience, and qualification.

Knowledge section comprised of 12 items both positive and negative; regarding nature of disease, etiology, symptoms, risk group, testing, transmission, treatment, and precautions/ prevention. Each question was responded as correct or incorrect. The correct answer was marked as 1 while wrong answer was marked as 0. Total score ranges from 0 to 12 and a cutoff level of equal to or <8 was set for poor knowledge and ≥9 (75%) for good knowledge.

Practice section included six items regarding use of face mask and practice of other precautionary measures. Each item was responded as yes (1-point), no (0-point), and sometimes (0-point). Practice items total score ranged as 0–6, a score of ≥4 demonstrated good practice, and a score of <4 indicates poor practice toward precautionary measures of COVID-19.

**Ethics**

The study questionnaire contained consent portion that stated purpose, nature of survey, study objectives, volunteer participation, declaration of confidentiality, and anonymity.

**Results**

**Characteristics of staff nurses**

A total of 220 staff nurses were included in study, out of which majority was female (87.7%) and (12.3%) male, majority (82.7%) of respondents were of age <30 years, and (82.7%, 935.9 %) have experience of <1 year, and more than half (50.9 %) of the staff nurses were graduate [Table 1].

Figure 1 summarizes the sources of information utilized by staff nurses to seek information regarding COVID-19. The majority of staff nurses reported social media (70%) as main source of information followed by radio and television (17%), newspaper and magazine (13%).

Table 2 reveals the level of knowledge and practice among staff nurses. The most of the staff nurses (78.2%) had good knowledge regarding COVID-19 and only 21.8% had poor knowledge regarding COVID-19.

About (97.7%) of staff nurses had good practice related to COVID-19 and 2.3% of staff nurses had poor practice related to COVID-19.

Table 3 represents the responses obtained for knowledge items of questionnaire. Mixed responses were obtained regarding 10 knowledge items. About 85.9% respondents were well aware of that plant is not a source of infection (K2). About 94.1% respond that COVID-19 patients develop severe acute respiratory illness (K3). In addition, only 34.5% correctly identified that antibiotics are not first line treatment (K5). When questions asked regarding first case of coronavirus seen (K7) and antiviral drug flavipiravir (K8), 27.7% and 53.2%
respondents, respectively, were unable to identify correct responses. More than 86% of staff nurses were well aware about treatment, incubation period, symptoms, transmission, and precautions regarding COVID-19.

Table 4 represents the responses obtained for practice assessing items of questionnaire. The majority of respondents had good practice regarding each item with highest practice showed among staff nurses toward cover your nose and mouth during sneezing and coughing P6 (99.1%) and using face mask in crowds P3 (95.9%). A lower percentage of good practice was observed among staff nurses regarding throwing the used tissues in trash P4 (76.8%) and regarding educating their patients regarding disease P1 (86.4%).

Table 5 shows the association of knowledge and practice with selected demographic variables of staff nurses. There was significant relationship of knowledge with qualification (22.805) at 0.05 level of significance. Regarding practice, there was significant relationship with qualification (9.314) and experience (11.635) at 0.05 level of significance.

**Discussion**

To best of our knowledge, this is the study that has thoroughly assessed the knowledge and practice of staff nurses toward COVID-19 in Punjab.

Findings of current survey demonstrated that the majority of staff nurses have good knowledge (78.2%, n = 172) and good practice (97.7%, n = 215) toward COVID-19 [Table 2]. A cross-sectional survey with purposive sampling was conducted at central institute of psychiatry, Ranchi, India. A sample of 235 HCWs consisting of nurses, wards attendants, and housekeeping staff took part in the study. Participants completed a 36-item questionnaire assessing their KAP related to COVID-19. About 79.42% of HCWs in this study had adequate knowledge of COVID-19 symptomatology, transmission, management, and preventive measures. About 89.79% were confident that India would win the battle against COVID-19. About 35.32% fear to work in a hospital, but on the other hand, 80.85% of healthcare staff considered coming to work as part of their duty. Good practices such as wearing a mask before leaving home and practicing proper cough hygiene were observed. The significant difference found in KAP among the three groups. Spearman’s correlation was significant between age and level of education of the participants with the KAP.[17]

An online survey-based study was conducted to assess knowledge, attitude, and practice among HCPs in Pakistan regarding COVID-19. Of 414 participants, 29.98% (n = 120) physicians, 46.65% (n = 189) pharmacists, and 25.36% (n = 105%) nurses. The most commonly utilized information source was social media (87.68%, n = 363). Findings showed HCPs have good knowledge
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Conflicts of Interest

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References


