

Knowledge, Attitude and Practice Regarding Prevention and Control of Covid-19 Among Nurses of tertiary Care Hospital

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ABSTRACT

Introduction

Covid-19 has become a global health threat and the disease burden is expected to increase more. Nurses are the front lines of Covid management. Because this work requires close personal exposure to patients with Covid-19, nurses are at high risk of infection, contributing to further spread. Nurses' knowledge, attitudes, and practices can influence the prevention and control of pandemic. Thus, the aim of the study was to assess knowledge, attitude, and practice regarding the prevention and control of Covid-19 among nurses.

Methods

Descriptive cross-sectional study design was carried out among 141 nurses from the central hospital, Kathmandu. Purposive sampling technique was used and the data collection date was June 5 to July 20, 2020. A self-administered semi-structured questionnaire was used. Ethical permission was obtained from Nepalese Army Institute of Health Sciences, Kathmandu. The data were analyzed using descriptive statistics.

Results

Study showed that 60.3% of the participants had good knowledge, 53.2% of them had acceptable practice and cent percent (100%) of them had a positive attitude on the preventive and control measures against Covid-19. More than 3/4th (75.8%) of them were agreed to handle the Covid-19 outbreak confidently in their healthcare setup. Although, 85.8% of participants were worried that they and their family members will probably get infected with Covid-19 while working in the hospital. However, 39% of them were feeling isolated by their community, and relatives due to their profession.

Conclusions

Nurses have good knowledge, positive attitude, and acceptable practice about prevention and control of Covid-19. However, the level of some knowledge and practice was still lower than that expected.

Keywords: attitude; Covid-19; knowledge; nurses; prevention and control; practice.

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INTRODUCTION

Nurses are the backbone of any health system. Today, many nurses find themselves on the frontline in the battle against Covid-19. International Council for Nurses estimated that about 7% of all Covid-19 cases, internationally, were among health professionals, which represented 450 thousand cases, with the death of 600 nurses at the time.¹

The study of China revealed 89% of HCWs had sufficient knowledge, and 89.7% followed correct practices regarding Covid-19. To prevent the probable transmission of infection among HCWs, proper knowledge, attitude, and standard practice is the utmost issue.²

In Nepal where the resources are scarce and the infected cases are increasing day by day, this study is needed to be done to determine promptly the baseline information in the early stages, then the findings can contribute in designing relevant training and policies before the outbreak and guide them in prioritizing protection and avoiding occupational exposure.

METHODS

This was a descriptive cross-sectional study conducted in Shree Birendra Hospital (SBH), Chhauni, Kathmandu from 5 June 2020 to 20th July 2020. SBH is a designated hospital to treat Covid-19 cases in Nepal. All nurses working in different wards of SBH were taken as a study population. The sample size was 141 using a simple mean formula (infinite and finite population) calculated at a 95% confidence interval where 5% of allowable error and 10% non-response rate based on 97% knowledge of Covid-19 among healthcare workers in a similar study conducted in Bolivia and Colombia in 2020.³ A purposive sampling technique was used to select a sample.

The inclusion criteria of the study were nurses

who were assigned at the front line of the Covid-19 in different Covid wards, and willing to participate in the study. Similarly, the exclusion criteria were the Nurses at the top-level manager, samples involved in pre-testing, and not providing consent to participate. We conducted a self-administered structured questionnaire which was pretested in 10% of samples in a similar population but in a different setting to ensure internal consistency of the questionnaire. A structured English version tool to assess knowledge, attitude, and practice about prevention and control of Covid-19 was developed by the authors from reviewing different literature and based on the effective recommendations by the CDC, WHO, and Ministry of Health and Population, Nepal.

We defined study participants were the nurses assigned in different Covid wards of SBH. Similarly, knowledge, attitude, and practice refer to the understanding, thinking or feeling and actual application from the nurses towards the preventive and control measures of Covid-19 on hand hygiene, respiratory hygiene, physical distancing, donning and doffing, disinfection, and waste management during care of Covid-19 cases. Also, the knowledge was assessed from 12 items of true-false statements and it was classified as good knowledge ($\geq 60\%$) and poor knowledge ($< 60\%$).⁴ Similarly, 10 items of 3 point Likert scale of agree, not sure, and disagree was used to assess attitude. It was graded as positive attitude $\geq 60\%$, and a negative attitude $< 60\%$.⁴ Practice also assessed from 10 items statements and graded as acceptable practice $\geq 80\%$ and unacceptable practice $< 80\%$.⁴

The different variables studied and analyzed were: socio-demographic factors (age, sex, level of education, marital status), job-related factors (years of experience, training, duration of duty hours), preventive and control measures of Covid-19 (hand hygiene, respiratory

hygiene, physical distancing, donning and doffing, disinfection and waste management), knowledge, attitude and practice on prevention and control of Covid-19

We obtained ethical permission from the Nepalese Army Institute of Health Sciences (NAIHS). Likewise, we obtained formal permission from the authority of SBH and took written informed consent from each participant. The participant was informed about their right to refuse at any time during the study. The data was entered and analyzed by SPSS software version 20 and expressed the findings into descriptive form

in frequency, percentage, mean, and standard deviation, along with the tabular presentation.

RESULTS

Out of the total 141 samples, slightly less than half (46.1%) of them were 20-25 years with mean 27.12 ± 5.88 years. All (100%) participants were female. More than half (50.4%) have done PCL nursing. More than half (52.5%) of the participants were unmarried. Like as 22% of participants had >10 years' experience and 61% of them had 8 hours of duty per day. The majority (89.4%) of participants have got Covid-19 preparedness training from their own hospital (Table 1).

Characteristics	Frequency	Percent (%)
Age in completed years		
20-25 years	65	46.1
26-30 years	42	29.8
31-35 years	22	15.6
36-40 years	8	5.7
>40 years	4	2.8
Sex		
Female	141	100.0
Educational status		
PCL Nursing	71	50.4
Bachelor of Nursing	65	46.1
Masters of Nursing	3	2.1
BSc Nursing	2	1.4
Marital Status		
Unmarried	74	52.5
Married	67	47.5
Work Experience		
0-2 years	43	30.5
2-5 years	29	20.6
5-10 years	38	27.0
>10 years	31	22.0
Duty Hours per day		
8 hours	86	61.0
12 hours	55	39.0
Receive Covid-19 Training		
Yes	126	89.4
No	15	10.6

Out of the total of 141 samples, most (84.4%) of them said the main mode of transmission of Covid-19 was airborne and 74.5% of them mentioned an effective period of alcohol-based hand rubbing as recommended by WHO was 10-20 seconds. A majority (83.7%) of them said the physical distance to be maintained as recommended by WHO was at least one meter. Similarly, 59.6% said that people, who were well, need to wear an N95 mask to prevent Covid-19. A minority (35.5%) of them said that donning and doffing of PPE refers to the process of removing and wearing PPE respectively. The majority (87.2%) of them said 0.5% sodium hypochlorite was used in the disinfection of the Covid-19 isolation ward. However, 60.3% of the participants had good knowledge and 39.7% of them had poor knowledge of prevention and control of Covid-19 (Table 2).

Out of the total 141 samples, most (79.4%) of the participants were agreed they were involved in providing care without any hesitation if a Covid patient gets admitted to the isolation ward. Furthermore, 85.8% of participants were more concerned that they would carry the infection from the hospital to household and family members. Similarly, 39% of participants were feeling isolated and even abandoned by their community people, and relatives due to their profession. More than half (55.3%) of them were agreed that they caught the virus from handling patients although they were wearing PPE. Similarly, 75.8% of participants were agreed that they were confidently handled the Covid-19 outbreak in their healthcare setup. However, 100% of the participants had a positive attitude on the prevention and control

Table 2. Participant's knowledge on Prevention and Control of Covid-19 (n=141).

Statement	True	False
	Freq.%	Freq.%
# Covid-19 is an infectious disease caused by the Covid-19 virus.	107 (75.9)	34 (24.1)
*The incubation period of Covid-19 is 2-14 days.	137(97.2)	4 (2.8)
#The main mode of transmission of Covid-19 is airborne.	119 (84.4)	22 (15.6)
*The effective time of hand washing with soap and water as recommended by WHO is 40-60 seconds.	117 (83)	24 (17)
#The effective time of alcohol-based hand rubbing as recommended by WHO is 10-20 seconds.	105 (74.5)	36 (25.5)
*The physical distance to be maintained between two persons as recommended by WHO to prevent Covid-19 is at least one meter.	118 (83.7)	23 (16.3)
# People who well, need to wear N95 mask to prevent Covid-19.	84 (59.6)	57 (40.4)
# Donning and doffing of PPE refers to the process of removing and wearing PPE respectively.	50 (35.5)	91 (64.5)
*The order of donning PPE is Gowns-Shoe-cover-Gloves-Mask-Goggles.	60 (42.6)	81 (57.4)
# Covid-19 infected waste is treated by 0.05% chlorine.	81 (57.4)	60 (42.6)
* 0.5% Sodium hypochlorite used in disinfection of Covid-19 isolation ward.	123 (87.2)	18 (12.8)
# 70% Ethyl alcohol is used in disinfection to prevent Covid-19.	130 (92.2)	11 (7.8)
Knowledge on Covid-19		
Good knowledge - 85 (60.3%)		
Poor knowledge - 56 (39.7%)		
*True Statement # False Statement		

of Covid-19 (Table 3).

Out of a total of 141 samples, 100% of participants

maintain a safe distance with patients while talking to prevent Covid-19. Similarly, 54.6% of them were

Table 3. Participant's Attitude on Prevention and Control of Covid-19 (n=141).			
Statements	Agree	Not Sure	Disagree
	Freq.%	Freq.%	Freq.%
* If a Covid patient gets admitted in an isolation ward, I will involve in providing care without any hesitation.	112 (79.4)	15 (10.6)	14 (10)
# I am worried that I and my family members will probably get infected with Covid-19 while working in the hospital.	121 (85.8)	12 (8.5)	8 (5.6)
# Covid-19 suspected patients should be better to refer to other hospitals without any check-up.	11 (7.8)	3 (2.1)	127 (90.1)
# Wearing multiple surgical masks is the best way to prevent Covid-19 transmission.	13 (9.2)	29 (20.6)	99(70.3)
# Resignation from the profession will be the best way if an outbreak may occur.	7 (4.9)	5 (3.5)	129 (91.5)
# I feel isolated and even abandoned by my community people and relatives due to my profession.	55 (39)	29 (20.6)	57(40.5)
# If I meet unfamiliar persons, I will be worried that they might transmit the virus.	94 (66.6)	29 (20.6)	18 (12.7)
* If someone coughed or sneezed near me without any precaution, I would catch the virus.	85 (60.3)	32 (22.7)	24 (17.0)
* I might catch the virus from handling patient although I am wearing PPE.	78 (55.3)	29 (20.6)	34 (24.1)
* I am confident to handle the Covid-19 outbreak in my healthcare setup.	107 (75.8)	22 (15.6)	12 (8.5)
Attitude on Covid-19			
Positive attitude - 141 (100%)			
* Positive Statement # Negative Statement			

said that hand hygiene and personal protective equipment (PPE) were highly effective in preventing Covid-19. Most (88.7%) of the participants were followed by preventive and control measures against Covid-19. Most (95.7%) of them were sensitized their junior as per the WHO guidelines in their workplace but 70.2% of the participants have used a surgical mask when coming into contact with the patient. Like as 73.8% of the participants have not kept a one-

mentioned the correct way of using the surgical mask is: hold both stripes of the mask by both hands, put it into the ear, pinch the metal strip and pull down. More than half (53.2%) of them had acceptable practice and 46.8% had unacceptable practice on prevention and control of Covid-19 (Table 4).

Table 4. Participant's Practice on Prevention and Control of Covid-19 (n=141).		
Statements	Yes	No
	Freq.%	Freq.%
*Hand hygiene and PPE were highly effective in preventing Covid-19.	141 (100)	
*Follow preventive and control measures against Covid-19.	125 (88.7)	16 (11.3)
*Sensitized their junior as per the WHO guidelines for the prevention of Covid-19 in their workplace.	135 (95.7)	6 (4.3)
*Used a surgical mask when coming into contact with the patient.	42 (29.8)	99 (70.2)
*Wash hands before and after touching the patient frequently is necessary to prevent and control Covid-19.	130 (92.2)	11 (7.8)
*Keep one-meter distance with patients while talking to prevent Covid-19.	37 (26.2)	104 (73.8)
#Correct dose of bleaching powder to prepare 0.5% chlorine solution is 16 gram.	31 (22.0)	110 (78.0)
*Correct way of using a surgical mask is: hold the both stripe of a mask by both hands, put it into the ear, and pinch the metal strip, and pull down the mask's bottom	64 (45.4)	77 (54.6)
*Perform alcohol-based hand rubbing in between every step while doffing PPE helps to control the transmission of Covid-19.	139 (98.6)	2 (1.4)
*Changing chlorine solution is necessary every 24 hours in the workplace to prevent Covid-19.	134 (95.0)	7 (5.0)
Practice on Covid-19		
Acceptable Practice - 75(53.2)		
Unacceptable Practice - 66(46.8)		

* Correct Statement # Wrong Statement

DISCUSSIONS

The present study showed that most (89.4%) of the participants had got Covid-19 preparedness training. This finding is inconsistent with another study conducted in China which showed that 64.63% of the participants had received Covid-19 training. It might be a variation in the result because Nepal has sufficient time to Covid preparedness for their health care professional but in China, there was a sudden outbreak of Covid.⁵

This study revealed that 60.3% of the participants had good knowledge of prevention and control of Covid-19 but this finding contradicts another study conducted across the Globe (Asia, Americas–North and South, Europe, Africa, and

other–Australia and Antarctica). Results showed 92.7% had good knowledge.⁶ Another study conducted in Bolivia and Colombia also showed that knowledge was significantly higher (97.4%) and (93.0%) respectively.⁷ Present study finding is similar to the study conducted in Uganda that study illustrated 69% have sufficient knowledge towards Covid-19.⁸ Similarly, the present study finding is consistent with another study conducted in Italy revealed that overall there was good knowledge on 2019-nCoV control measures.⁹

This study showed 88.7% of the participants had followed preventive and control measures against Covid-19. This finding is consistent with another study conducted across the Globe that

showed 99.2% took preventive measures against Covid-19. Similarly, the present study revealed 95.7% of them were sensitized their junior as per the WHO guidelines for the prevention of Covid-19 in their workplace. The present study is inconsistent to the study conducted across the Globe that revealed 43.8% of the dentists had sensitized their staff as per the WHO guidelines for the prevention of Covid-19 in their workplace.⁶

The present finding showed more than half (53.2%) of the participants had acceptable practice regarding preventive and control measures against Covid-19. But this finding is dissimilar to the study conducted in Uganda revealed that 74% had good practices towards Covid-19. The present study showed 29.8% of the participants were wear a mask when coming into contact with the patient. This finding is inconsistent with the same study conducted in Uganda that showed 54% of them wear a mask when coming into contact of the patient.⁸

This study showed 73.8% of the participants did not keep a one-meter distance with patients while talking to prevent Covid-19. This finding is similar to the study conducted in Iran revealed that 67% of physicians did not keep a one-meter distance with patients and the same study showed that 93% of medical persons knew how to use face mask correctly but the present study showed that 45.4% of the participants knew about how to use face mask correctly.¹⁰ It might be due to the Covid outbreak occurred in Iran was five months ago. So that the medical persons of Iran were more experienced in the correct practice of used masks.

The present finding depicted 53.2% of the participants had acceptable practice regarding preventive and control measures against Covid-19. But this finding is dissimilar to the study conducted in China revealed that 89.7%

followed correct practices regarding Covid-19.² Another study conducted in Islamabad, Pakistan showed 88.7% had a good practice regarding Covid-19.¹¹ The practice in Nepal seems to be less because Covid-19 is still not an outbreak in Nepal yet.

The present study showed 100% of the participants had a positive attitude on the prevention and control of Covid-19. So, the present study is inconsistent with another study conducted in Uganda revealed that 21% have had a positive attitude towards Covid 19.³

This study revealed half (75.8%) of the participants were agreed about the confidence to handle the Covid-19 outbreak in their healthcare setup. This finding is dissimilar with the study of Uganda that revealed 44% of the participants that they would confidently participate in the management of Covid-19.³

The study showed 85.8% of participants were strongly worried that the virus would be transmitted to them and their family members will probably get infected with Covid-19 while working in the hospital. This finding also associated with the finding of Iran showed 92.1% were worried that the virus would be transmitted to their families or other people and 77% were afraid of being infected with the virus themselves.¹⁰

The present study showed 79.4 of the participants were agreed in providing care without any hesitation if a Covid patient gets admitted to the isolation ward. But this finding is inconsistent to another study conducted in Jordan showed 82.6% reported that they prefer to avoid working with a patient with a suspected case of Covid-19.¹¹

CONCLUSIONS

In conclusion, nurses have good knowledge, positive attitude, and acceptable practice on prevention and control of Covid-19. Despite

the endorsement of various programs including orientation and training, the level of some knowledge and practice is still lower than that expected. There is still a huge gap in practice that is not being met by the current program. There is still much to do to promote effective control measures and correct preventive behaviors at the individual level. Some additional efforts are

at the urgent need to address this issue. So, as to behave at their best to prevent and control of Covid-19.

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REFERENCES

1. Soares CB, Peduzzi M, Costa MV. Nursing workers: Covid-19 pandemic and social inequalities. *Revista da Escola de Enfermagem da USP*. 2020;54. <http://dx.doi.org/10.1590/s1980-220x2020ed0203599>
2. Zhou M, Tang F, Wang Y, Nie H, Zhang L, You G, et al. Knowledge, attitude and practice regarding Covid-19 among health care workers in Henan, China. *Journal of Hospital Infection*. 2020;105(2):183-187. <https://doi.org/10.1016/j.jhin.2020.04.012>
3. Escalera-Antezana JP, Cerruto-Zelaya PE, Apaza-Huasco M, Miranda-Rojas SH, Flores-Cárdenas CA, Rivera-Zabala L, et al. Healthcare workers' and students' knowledge regarding the transmission, epidemiology and symptoms of Covid-19 in 41 cities of Bolivia and Colombia. *Travel Medicine and Infectious Disease*. 2020: 101702. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7195304/>
4. Dauda Goni M, Hasan H, Naing NN, Wan-Arfah N, Zeiny Deris Z, Nor Arifin W, et al. Abubakar Baaba A. Assessment of knowledge, attitude and practice towards prevention of respiratory tract infections among Hajj and Umrah pilgrims from Malaysia in 2018. *International journal of environmental research and public health*. 2019;16(22):4569. <https://doi.org/10.3390/ijerph16224569>
5. Shi Y, Wang J, Yang Y, Wang Z, Wang G, Hashimoto K, et al. Knowledge and attitudes of medical staff in Chinese psychiatric hospitals regarding Covid-19. *Brain, Behavior, & Immunity-Health*. 2020;4:100064. <https://doi.org/10.1016/j.bbih.2020.100064>
6. Kamate SK, Sharma S, Thakar S, Srivastava D, Sengupta K, Hadi AJ, et al. Assessing Knowledge, Attitudes and Practices of dental practitioners regarding the Covid-19 pandemic: A multinational study. *Dental and Medical Problems*. 2020;57(1):11-7. <https://europepmc.org/article/med/32307930>
7. Saqlain M, Munir MM, Rehman SU, Gulzar A, Naz S, Ahmed Z Tahir, et al. Knowledge, attitude, practice and perceived barriers among healthcare workers regarding Covid-19: a cross-sectional survey from Pakistan. *Journal of Hospital Infection*. 2020;105(3):419-23.

- <https://doi.org/10.1016/j.jhin.2020.05.007>
8. 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. *Frontiers in Public Health*. 2020;8:181.
<https://www.frontiersin.org/articles/10.3389/fpubh.2020.00181/full>
 9. Moro M, Vigezzi GP, Capraro M, Biancardi A, Nizzero P, Signorelli C, et al. 2019-novel coronavirus survey: knowledge and attitudes of hospital staff of a large Italian teaching hospital. *Acta Bio-medica: Atenei Parmensis*. 2020;91(3-S):29-34. <https://europepmc.org/article/med/32275264>
 10. Maleki S, Najafi F, Farhadi K, Fakhri M, Hosseini F, Naderi M. Knowledge, Attitude and Behavior of Health Care Workers in the Prevention of Covid-19.2020
<https://www.researchsquare.com/article/rs-23113/v1>
 11. Khader Y, Al Nsour M, Al-Batayneh OB, Saadeh R, Bashier H, Alfaqih M, et al. Dentists' awareness, perception, and attitude regarding Covid-19 and infection control: cross-sectional study among Jordanian dentists. *JMIR Public Health and Surveillance*. 2020;6(2):e18798. <https://publichealth.jmir.org/2020/2/e18798/>

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