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Challenges of nurses in management of COVID-19 patients in tertiary hospital

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ABSTRACT

COVID -19 pandemic is a unique and unprecedented scenario for many workers specially for the frontline fighter nurses. The nurses are facing significant challenges to take care of COVID -19 patients in all over the world. The objective of the study was to determine the challenges of nurses in management of COVID-19 patients in tertiary hospital. Descriptive cross sectional study was conducted in two tertiary level government hospitals namely Dhaka medical college hospital (DMCH), Dhaka and Dedicated corona isolation hospital extended part of Rangpur medical college hospital (RpMCH), Rangpur; Bangladesh from January to December, 2020. Data were collected through face to face interview using a semi structured questionnaire containing demographic details and the challenges faced by the nurses in management of COVID-19 patients in tertiary hospital where 240 nurses were selected conveniently. The collected data were processed and analyzed meticulously with the help of SPSS (Version 26). The findings revealed that the mean age of the respondents were 30.22 (± 5.557) years. The majorities 79.2% were female. Most 59.6% participants were in 26 to 30 years and majority 61.3% of participants were completed diploma in Nursing. 7.8% were pregnant and 59.6% participant live in nuclear family. 51.7% of participants got donning and doffing training and majority 72.1% of participants didn't get infection control training. 68.7% participants consider that the available resources are not adequate to manage this situation and 62.9% of participants consider that the supply of N95 or equivalent musk is not sufficient. 52.1% of participants believe that the available manpower is not adequate to manage this situation. More than half 69.2% of participants believe that the available equipment is not enough to manage this situation and 50% thought that there is a shortage of medical Crash cart with emergency medication. 86.7% of participants believe that they are highly concerned about family safety and 60% of participants believe that they are worried about their safety because of caring COVID-19 patients. The most common challenges faced by nurses are shortages of resources, manpower, and equipment; lack of training; concern about personal and family safety. The findings of the study will be helpful for the authority to develop policy to ensure quality and sustainable health care development.

INTRODUCTION

The corona virus disease 2019 (COVID-19) pandemic posed major challenge to the healthcare systems across the world. As nurses are committed to serve the society and the biggest challenges are face today is to cure and care for the people affected with COVID-19. In recognition of nurses' contributions, the year 2020 was designated by the World Health Organization as the "International Year of the Nurse and the Midwife." Nurses, being one of the strongest pillars of the health-care delivery system are always ready to face challenges as frontline warriors. Rational, correct, and consistent use of available PPE and appropriate hand hygiene also helps to reduce the spread of the pathogens. PPE effectiveness depends on adequate and regular supplies, adequate staff training, proper hand hygiene and appropriate human behavior (WHO, 2020).

Among the confirmed cases worldwide, 6%, or 90,000, were in healthcare workers in the Philippines, since January 2020. The country's health agency identified 2736 healthcare workers who contracted the disease, of whom 1006 were nurses (Philipin Department of Health, 2020).

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The COVID-19 pandemic in Bangladesh was first detected in 8th march 2020 and then to August 2020 only Six months 12 Nurses are dead and 2381 Nurses are infected to take care of COVID-19 affected patients (SNSR, 2020).

Nurses are playing vital role to taking care of all patient including COVID -19 affected cases. They can't ignore their responsibility even there is high chance to be infected. By the working nature the nurses has to be closure with the patients for providing care even though need to do highly aerosolized procedure, drawing blood, dressing wound, providing essential management in an emergency, cardiopulmonary resuscitation and nursing care. That's why nurses are very vulnerable group. PPE, infection control training, support from highest level of authority, psychological, social and family support should protect nurses, overcome the challenges and ensure favorable environment for patient quality care. Considering the above fact the objective of the present study was to determine the challenges of nurses in management of COVID-19 patients in tertiary hospital with the following aims.

i. To determine manpower and resources related challenges of nurses in management of COVID-19 patients.
ii. To assess working environment and personal factors related challenges of nurses in management of COVID-19 patients.
iii. To find out equipment and job related challenges of nurses in management of COVID-19 patients.
iv. To determine the socio demographic status of nurses.

MATERIALS AND METHODS

Study Design

A descriptive cross sectional study was used to determine the challenges of nurses in management of COVID-19 patients in tertiary hospital. This study was conducted from 1st January 2020 to 31th December-2020 in two tertiary level government hospitals namely COVID Unit of Dhaka medical college hospital (DMCH), Dhaka and Dedicated corona isolation hospital extended part of Rangpur medical college hospital (RpMCH), Rangpur; Bangladesh.

Study Population

The study population were the Nurses working in COVID-19 dedicated hospital, COVID Unit of Dhaka medical college hospital (DMCH), Dhaka and Dedicated corona isolation hospital extended part of Rangpur medical college hospital (RpMCH), Rangpur; Bangladesh.

Nurses who was available in duty time, willing participate with written consent and working COVID-19 dedicated hospital for at least three month were considered as participants in this study.

Data collection

A Semi structured pretested questionnaire in English with Bangla translation was used for data collection. A total 240 sample were selected conveniently. The data were collected from respondents by face to face interview using a standard questionnaire. The respondent was given full assurance privacy and confidentiality will be maintained during and after data collection.

Data processing and analysis

The collected data checked, verified and coded. Data processing and statistical analysis was done by using IBM SPSS (statistical package for social science) 26.0 versions. Descriptive statistics was used for all variables. Values were expressed as frequencies and percentages. Chi-square was done to see the association. $P<0.05$ was considered to be statistically significant.

Ethical approval

Prior the beginning of the study ethical of the research protocol from the institutional review board (IRB), national institute of preventive and social medicine (NIPSOM); Mohakhali; Dhaka; was taken.

RESULTS

Table 1: Distribution of the participants according to their Socio-Economic characteristics (n = 240)

Socio-Economic characteristics	Status	Percentage
Age	Under 25 years	11.3
	26-30 years	59.5
	31-35 years	15.0
	36-40 years	7.1
	41 years and older	7.1
Sex	Female	79.2
	Male	20.8
Religion	Muslim	84.2
	Hindu	15
	Christian	0.8
	Buddhist	7.8
Marital status	Married	75
	Unmarried	23.8
	Widows/ widowers	0.4
	Divorced	0.8
Pregnancy status	Not pregnant	92.2
	Pregnant	7.8
Children	No children	42.9
	1 children	33.5
	2 children	19.8
	More than 2 children.	3.8
Monthly salary	20,000 to 30,000	19.6
	30,001 to 40,000	19.2
	40,001 - 50,000	23.3
	More than 50000 taka.	37.9
Type of family	Nuclear family	59.6
	Joint family	39.6
	extended family	0.8
Family members	2 to 5 members	74.2
	6 to 9 Members	19.2
	10 to 13 members	6.6
	Government Hostel	6.7%
Spending area during quarantine period	Government house	0.4%
	Rent House	59.2%
	Own house	33.8%
Educational qualification	Diploma in Nursing	61.3%
	B.Sc in Nursing	25.4
	M.Sc in Nursing/MPH	13.3
Husband's/wife's occupation	Service holder	52.5
	Businessman	17.5
	Retired person	0.8
	Farmer	0.8
Current working position	Senior staff nurse	96.7
	Staff nurse	3.3
Involved with non-nursing work	Yes	30.8
	No	69.2

The age distribution of study participants demonstrated that most 59.6% participants were in 26 to 30 years, followed by 11.3% were less than 25 years; 15.0% ware in 31 to 35 years; 7.1% were in 36 to 40 years and 7.1% were in more than 50 years (Table 1).

Among 240 participants the majorities 79.2% were female and 20.8% were male. Majority (84.2%) were Muslim, 15% were Hindu and 0.8% participants were Christian. 75% were married, 23.8% unmarried, 0.4%widows/ widowers and 0.8% were divorced (Table 1).

Among 141 participants 7.8% were pregnant and 92.2% were not pregnant. Among 182 participants 42.9% had no children, 33.5% had 1 child; 19.8% had 2 children and 3.8% of the participants had more than 2 children (Table 1).

Among 240 participants, approximately 19.6% family income 20,000 to 30,000 taka, 19.2% have 30,001 to 40,000 taka; 23.3% have 40,001- 50,000 taka and approximately 37.9% have more than 50000 taka. Approximately 59.6% participant live in nuclear family, 39.6% live in joint family and .8% live in extended family (Table 1).

The table 1 shows that majority 74.2% of participants had 2 to 5 members, 19.2% had 6 to 9 members; 6.6% of participants had 10 to 13 family members.

Majority (59.2%) of participants were living in a rented house, 6.7% were living in a government hostel; .4% were living in a government house; 33.8% of participants were living in their own house during the quarantine period (Table 1).

The majority (61.3%) of participants was completed diploma in Nursing, 25.4% completed

B.Sc in Nursing and 13.3% completed M.Sc in Nursing/MPH.

Among the participants 52.5% of husband's/wife's occupation was service holder, 17.5% were businessman; 0.8% were retired person and 0.8% husband's/wife's occupation was farmer. However, majority (96.7%) of participant's current working position was senior staff nurse and 3.3% current working position was staff nurse, 34.6% of participants involved with non-nursing work and 65.4% weren't involved with non-nursing work (Table 1).

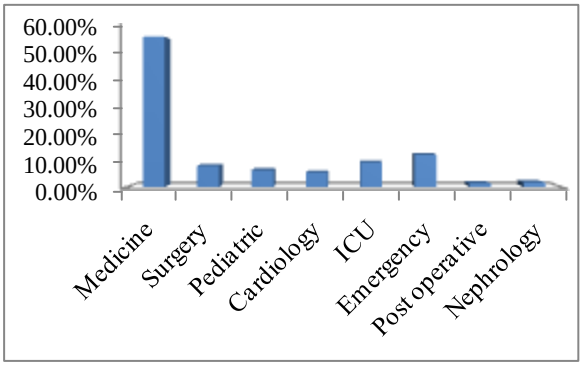

Figure 1: Distribution of the participants by current working department (n = 240)

The figure 1 shows that 56.3% of participant working in medicine department, 7.9% of in surgery; 6.3% in pediatric; 5.4% in cardiology; 9.2% working in ICU; 12.1% working in emergency; 1.3% working in post operative department and 1.7% of participant working in nephrology department.

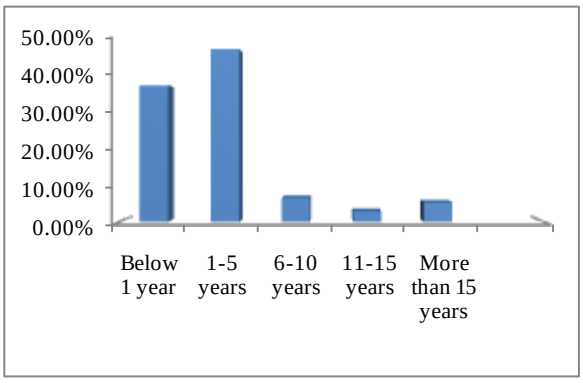

Figure 2: Distribution of the participants by length of service (n = 240)

The figure 2 shows that 37.5% participant's length of services were below 1 year, 47.5% were 1 to 5 years; 6.7% were6 to 10 years; 2.9% were11 to 15 years and 5.4% participant's length of services were more than 15 years.

Professional training

Table 2 shows that the majority 51.7% of participants got donning and doffing training and 48.3.7% of participants didn't get the training.

Table 2: Distribution of the participants by getting training on donning and doffing (n = 240).

Donning and doffing training	Frequency	Percentage
Yes	124	51.7
No	116	48.3
Infection control training		
Yes	67	27.9
No	173	72.1

Whereas 27.9% of participants got infection control training and the majority 72.1% of participants didn't get infection control training.

Resource availability

Table 3: Distribution of the participants according to their opinion about the adequacy of resources

Supply of gloves is adequate	Frequency	Percentage
Yes	119	49.6
No	121	50.4
Supply of N95 or equivalent musk is adequate		
Yes	89	37.1
No	151	62.9
Supply of gown is adequate		
Yes	229	95.4
No	11	4.6
Supply of hand sanitizer and soap is adequate		
Yes	218	90.8
No	22	9.2
Supply of linen and kits for patient care		
Yes	201	83.8
No	39	16.2
Manpower is adequate to manage this situation		
Yes	115	47.9

No	125	52.1
Shortages of physician		
Yes	86	35.8
No	154	64.2
Shortages of nurse		
Yes	87	36.3
No	153	63.7
Shortages of subordinate staff		
Yes	117	48.8
No	123	51.2

Regarding the resource availability 49.6% of participants told that the supply of gloves was adequate and 50.4% told that the supply of gloves weren't adequate (Table 3). 37.1% of participants told that the supply of N95 or equivalent musk is sufficient whereas 62.9% of participants told insufficient. Majority (95.4%) of participants told that the supply of gown is sufficient whereas 4.6% told insufficient.

Majority (90.8%) of participants told that the supply of hand sanitizer and soap is sufficient and 9.2% told insufficient. Majority (83.8%) of participants told that the supply of linen and kits for patient care was sufficient whereas 16.2% told insufficient.

47.9% of participants told that the available manpower was adequate to manage this situation and 52.1% told inadequate. 35.8% participants told that there was available physician to manage this situation whereas 64.2% told that the physician wasn't adequate. 36.3% of participants told that the nurse was adequate to manage this situation whereas 63.7% told that the nurses were not adequate. 48.8% participants told that there was a shortage of subordinate staff whereas 51.2% told that there wasn't shortage of subordinate staff to manage this situation.

Equipment

Majority of the participants (69.2%) told that the available equipment wasn't enough to manage this situation. However, 29.5% of participants thought that there was a shortage of Oxygen cylinder/wall mountain O2 supply, 37.5% thought that there was a shortage of suction machine; 57.9% thought that there was a shortage of intubation set; 40.8% thought that there was a shortage of resuscitation bag; 50% thought that there was a shortage of medical Crash cart with emergency medication ; 31.7% thought that there was a shortage of pulse oximeter; 57.1% thought there was a shortage of Cardiac monitors; 28.3% thought there was a shortage of hand washes basin, and 25% of participants thought that the Wheelchair having shortage, and 27.9% of participants thought that there is a shortage of Stretcher.

Table 4: Opinion regarding the availability of equipments to manage this situation (n = 240)

Equipments	Yes	No
Oxygen cylinder/wall mountain O_2 supply	70 (29.2%)	170 (70.8%)
Suction machine	90 (37.5%)	150 (62.5%)
Intubation Set	139 (57.9%)	101 (42.1%)
Resuscitation bag	98 (40.8%)	142 (59.2%)
Medical crush cart with emergency medication	120 (50%)	120 (50%)
Pulse oxymeter	76 (31.7%)	164 (68.3%)
Cardiac monitor	137 (57.1%)	103 (42.9%)
Hand wash basin	68 (28.3%)	172 (71.7%)
Wheelchair	60 (25%)	180 (75%)
Stretcher	67 (27.9%)	173 (72.1%)

Working status

Data showed that 13.3% of participants have a poor relationship with ward nursing in-charge or supervisors and 86.7% have good relationship with ward nursing in-charge or supervisors.

34.6% of participants interrupted and disturbed while performing job and 65.4% wasn't. 37.5% of participants facing bullying and harassment at workplace and 62.5% haven't facing bullying and harassment at workplace (Table 5).

25.8% of participants were frustrated due to heavy work load and 74.2% haven't. 36.3% participant's workplace was properly cleaning and disinfecting and 63.7% workplace wasn't properly cleaning

and disinfecting. 88.7% of participants told that working with PPE for long hours is a major physical and professional challenge and 11.3% told that working with PPE for long hours wasn't a major physical and professional challenge. 45% of participants worried about donning and doffing spaces in COVID-19 ward and 55% weren't worried about donning and doffing spaces in COVID-19 ward.

Table 5: Participants working status

Working status	**Frequency**	**Percentage**
relationship with ward nursing in-charge or supervisors		
Poor	32	13.3
Good	208	86.7
Interruption while performing job		
Yes	83	34.6
No	157	65.4
Facing bullying and harassment at workplace		
Yes	90	37.5
No	150	62.5
Frustrated due to heavy work load		
Yes	62	25.8
No	178	74.2
Workplace cleaning and disinfecting		
Yes	87	36.3
No	153	63.7
Working with PPE is a major physical and professional challenge		
Yes	213	88.7
No	27	11.3
Concerned about donning and doffing spaces		
Yes	108	45
No	132	55
Free transportation facility		
Yes	28	11.7
No	212	88.3
Free meals		
Yes	35	14.6
No	205	85.4
Recognition for current role		
Yes	184	76.7
No	56	23.3

Table 5 shows 11.7% of participants got free transportation facility and 88.3% of participants didn't get free transportation facility. 14.4% of participants told that they are getting free meals from the hospital during duty hours and 85.4% weren't getting free meals. 76.7% of participants told that they will recognition for their current role and 23.3% told that they will not recognition for their current role.

Table 6: Distribution of the participants by their concerned about the safety (n = 240)

Safety	Frequency	Percentage
Equipment is adequate to manage this situation		
Yes	208	86.7
No	32	13.3
Worried about self-safety		
Yes	144	60
No	96	40
Mandatory quarantine		
Yes	117	48.8
No	123	51.2

Data shows that 86.7% of participants were highly concerned about family safety and 13.3% weren't highly concerned about family safety. 60% of participants think that they are worried about their safety because of caring COVID-19 Patients and 40% think that they aren't worried about their safety because of caring COVID-19 patients. 48.8% of participants were concerned about mandatory quarantine and 51.2% weren't concerned about mandatory quarantine.

Table 7: Association between Level of educational qualification and satisfaction of current job position (n = 240)

Level of educational qualification	Satisfaction of current job position		χ^2, df, p value
	Yes	No	
Diploma in nursing	141 (95.9%)	6 (4.1%)	$\chi 2$ = 57.027 df = 2 p value = .000
BSc in nursing	48 (78.7%)	13 (21.3%)	
MSc in nursing/MPH	14 (43.8%)	18 (56.3%)	

There was a significant ($p < 0.05$) association between level of educational qualification and satisfaction of current job position.

Table 8: Association between satisfaction of current job position and frustrated due to heavy workload (n = 240)

Satisfaction of current job position	Frustrated due to heavy work load		χ^2, df, p value
	Yes	No	
Yes	45 (22.2%)	158 (77.8%)	χ^2= 9.236 df = 1 p value = .002
No	17 (45.9%)	20 (54.1%)	

There was significant (p<0.05) association between Satisfaction of current job position and frustrated due to heavy work load.

Table 9: Association between adequacy of manpower and facing bullying and harassment at workplace (n = 240)

Adequacy of manpower	Facing bullying and harassment at workplace		χ^2, df, p value
	Yes	**No**	
Yes	28 (24.3%)	87 (75.7%)	χ2 = 16.296 df = 1 p value =.000
No	62 (49.6%)	63 (50.4%)	
Total	90 (37.5%)	150 (62.5%)	

There was significant (p<0.05) association between adequacy of manpower and facing bullying and harassment at workplace.

Table 10: Association between current working department and shortage of medical crash cart with emergency medicine (n = 240)

Current working department	Shortage of medical crash cart with emergency medicine		χ2 , df, p value
	Yes (%)	No (%)	
Medicine	83 (61.5)	52 (38.5)	χ2 = 29.22 df = 7 p = 0.000 Fisher's Exact value = 29.51
Surgery	7 (36.8)	12 (63.2)	
Pediatric	8 (53.3)	7 (46.7)	
Cardiology	1 (7.7)	12 (92.3)	
ICU	7 (31.8)	15 (68.2)	
Emergency	9 (31.0)	20 (69.0)	
Post operative	1 (33.3)	2 (66.7)	
Nephrology	4 (100)	0 (0.0)	

The association between current working department and shortage of medical crash cart with emergency medicine is statistically significant (p value <0.003) (Table 10).

Table 11: Association between adequacy of resources and adequacy of equipments (n = 240)

Adequacy of resources	Adequacy of equipments		χ^2, df, p value
	Yes (%)	No (%)	
Yes	33 (44.0)	42 (56.0)	χ^2= 8.868 df = 1 p value <.003
No	41 (24.8)	124 (75.2)	
Total	74 (30.8)	166 (69.2)	

Table 11 shows association between adequacy of resources and adequacy of equipment. Chi-square test was done. The association between adequacy of resources and adequacy of equipments is statistically significant (p <0.05).

DISCUSSION

This cross-sectional descriptive study was conducted at COVID Unit of Dhaka medical college hospital (DMCH), Dhaka; and dedicated corona isolation hospital extended part of Rangpur medical college hospital (RpMCH), Rangpur; to determine the challenges of nurses in management of COVID – 19 patients. This study was conducted from 1st January 2020 to 31th December-2020. A Semi structured questionnaire in English with Bangla translation was used for data collection. The questionnaires were prepared using variables according to the specific objective of the study. The significant findings of the study were discussed according to analysis of table and figures.

The study (Table 1) showed that Mean age ± SD 30.22 ± 5.557 years. The youngest participants were 24 years of age where the oldest were 55 years of age and the most 59.6% participants were in 26 to 30 years. It is observed that 75% participants were married, 23.8% unmarried. The findings of the study showed that among 240 participants the majorities 79.2% were female and 20.8% were male. In this study, among the majority 61.3% of participants were completed diploma in Nursing, 25.4% completed B.Sc in

Nursing and 13.3% completed M.Sc in Nursing/MPH. The majority 72.5% of participants were live in rented house, 7.1% were live in government hostel; 4.2% were live in government house;16.3% of participants were live in own house (Table 1). A study was conducted by Dave, K. (2020) on challenges faced by nursing professionals working in hospitals in dealing with COVID -19 patients shows that, among 100 participants, the mean age was 35.09 ± 4.83 years. 50% nurses were in the age group of 30 to 40 years. 72% were females and 80% participants were married. Regarding educational qualifications, 60% had diploma, 30% were graduate and 10% participants were post graduate nurses. Majority of the participants 76% were from Government hospitals setting and 88% participants were resided in urban area.

In both study the majority 79.2% and 72% participants were female. All over the world the majority are female in nursing profession. According to government policy of Bangladesh every year 10% male are allowed to enter in nursing education program to become a nurse. The mean age, marital status of both studies was different. In both study the diploma, BSc level participants having almost same but interestingly the post-graduate level participants been more in this study which may indicate the ongoing advancement of nursing professional development in Bangladesh. This study is similar to present study although the study was conducted in India.

The findings of the study showed that the majority 51.7% of participants got donning and doffing training. The study showed that majority 72.1% of participants didn't get infection control training. Dave, K. (2020) found approximately 84% participants reported that they required training related to donning and doffing of PPEs and care of COVID -19 positive patients and 78% participants were concerned about training related to personal safety.

The findings of the study showed that 68.7% of participants think that the available resources were not adequate to manage this situation. The (Table 3) showed 50.4% of participants think that the supplies of gloves were not adequate. The study showed 62.9% of participants think the supply of N95 or equivalent musk was not sufficient. It is observed that majority 95.4% of participants think the supply of gown was sufficient. The study showed that majority 90.8% of participants think that the supply of hand sanitizer and soap was sufficient. Majority 83.8% of participants think that the supply of linen and kits for patient care was sufficient. The study showed that 52.1% of participants think that the available manpower wasn't adequate to manage this situation. It is also observed that 69.2% of participants think that the available equipment wasn't enough to manage this situation. In this study 29.5% of participants told that there was a shortage of Oxygen cylinder/wall mountain O_2 supply, 57.9% told that there was a shortage of intubation set; 40.8% told that there was a shortage of resuscitation bag; 50% told that there was a shortage of medical Crash cart with emergency medication. Dave, K. (2020) found, among 100 participants; majority 58% of the participants were extremely concerned for the availability of PPEs in hospital, 80% participants concern about shortage of N95 mask and 44% and 40% reported limited availability of goggles and hood respectively. Around 56% participants were reported supplies of linen, kits and equipments related workflow challenges Moreover, 84% participants were concern related to patient care supplies and equipments.

The findings of the study showed that 35% of participants told that the duration of work was too long. It is observed that 37.5% of participants told that they facing bullying and harassment at workplace. The study showed that 25.8% of participants told that they were frustrated due to heavy work load. The study showed that 45% of participants told that they were worried about donning and doffing spaces in COVID-19 ward. The study showed 88.3% of participants didn't get free transportation facility. Dave, K. (2020) found 75% participants were stressed and frustrated due to the workload, 68% were concern related to length of the duty shift; 68% were concerned for donning and doffing spaces in COVID – 19 wards; 62% were concerned for transportation facility for staff.

The findings of the study showed 86.7% of participants were highly concerned about family safety. The study showed that 60% of participants

were worried about their safety because of caring COVID-19 Patients. The study showed that 48.8% of participants were concerned about mandatory quarantine. Dave, K. (2020) found approximately 64% were highly concerned for personal safety and safety of family members; 64% were concern related to mandatory quarantine; 48% concerned for isolation facility for suspected; approximately 44% nursing professional were extremely concerned because of their underlying health issues and 18% were concerned because they were living with COVID-19 positive person.

The study finding reveals that a positive association between level of education and satisfaction of current job position ($p < 0.05$), satisfaction of current job position and frustrated due to heavy workload ($P < 0.05$) adequacy of manpower and facing bullying and harassment at workplace ($P < 0.05$); association between current working department and shortage of medical crash cart with emergency medicine shows significant association; and the association between adequacy of resources and adequacy of equipments were statistically significant (p value <0.05).

CONCLUSION

This cross sectional descriptive study conducted with the aim to find out the challenges of nurses in management of COVID-19 patient in tertiary hospital. In the study found that significant proportion of the participants were showing their concern about lack of infection control and donning doffing training, shortages of N95 musk, manpower and equipment. Moreover pregnancy, having children under two years, safety concern of nurses and their family; social support; workload related frustration poses difficult challenges for nurses. The psychological, social, organizational and national support for nurses should be more organize to provide for effectiveness of management of COVID-19 patients. The finding of the study will be helpful for the policy maker to protect the nurse from physical, mental, social and environmental challenges which could improve the ongoing situation and strengthen future preparedness plan to manage similar situation more efficiently.

Recommendations

- Infection control, donning and doffing training and continuous nursing education program should be started.
- Free meal, transportation service and government accommodation should be providing to all healthcare provider working in COVID-19 dedicated hospital.
- N95 musk and gloves should be provided daily for all nurses working in COVID-19 dedicated hospital.
- Working environment should be clean and disinfected according to CDC guideline.
- All Lifesaving drugs and equipment should be available for each department.
- More doctor, nurse and subordinate staff should be recruited.
- Policy should be developing to fight against similar situation in future.

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