KNOWLEDGE AND PRACTICE REGARDING COVID-19 PANDEMICS AMONG NURSING STUDENTS OF KATHMANDU VALLEY

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ABSTRACT

Coronavirus Disease 2019 (COVID-19) is an on-going pandemic that significantly affects the healthcare system globally. Appropriate prevention and control measures need to be adopted to manage the pandemic through the updated knowledge and practice by frontline health workers. Nursing students as part of the frontline health workers should know about COVID. Hence, this study aimed to assess the Knowledge and Practice Regarding COVID-19 Pandemics among Nursing Students of Kathmandu Valley. **Methods:** Descriptive, Cross-sectional study research design was used to assess the knowledge and practice of COVID-19 among 216 nursing students of Kathmandu valley through the probability lottery sampling technique from 11th March to 23rd March 2021. A self-administered structured questionnaire was used as a tool for data collection. Data were analysed in SPSS version 20 where descriptive statistical methods in terms of frequency, percentage, mean, standard deviation and inferential statistical methods i.e. chi-square test was used to see the association between socio-demographic variables, knowledge and practice. Likewise, Pearson correlation was used to reveals the relationship between knowledge and practice. **Results/ Finding:** The result showed 79.63% had good knowledge and 84.7% had good practice among the respondents. However, there was a significant relationship between knowledge and practice measures (p-value :< 0.001). Similarly, there was no association between socio-demographic variables, knowledge and practice except living conditions. **Conclusion:** Despite the tremendous crisis of the pandemic, this study reveals that the majority of respondents had a good level of knowledge and practice regarding COVID-19 among the respondents. However, training related to preventive measures, adequate supply of personal protective equipment should be provided to undergraduate students to make our society more secure and combat this pandemic.

KEYWORDS: COVID-19, Knowledge, Practice, Nursing Students, Pandemics.

INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is a fatal respiratory problem caused by the Novel Coronavirus subtype SARS-CoV-2.[1] It is a serious global health threat, highly infectious caused by a newly identified coronavirus that had mild to moderate respiratory illness which is transmitted through- the droplet infection when infected people cough and sneezes.[2]

The World Health Organization (WHO) stated Novel coronavirus as a public health emergency on January 30.[3] and named COVID19 on February 11, 2020.[4] The coronavirus COVID-19 is affected 221 countries and territories around the world and infected more than 101,087,195 people, including 2,174,702 deaths on 28 January 2021. In context to Nepal 270,375 have been infected and 2,020 have died.[5] WHO declared COVID-19 as a global pandemic on March 11, 2020.[6] The

numbers of people are infected and the mortality is increasing day by day worldwide.

In southeast Asia, 1,73,159cases are infected and 5,347 were dead.[7] On January 13, 2020, the first case was detected in Nepal, with a positive history of travel from the COVID-19 epicenter and he was investigated for COVID-19 and tested positive for COVID-19.[8]

For developing countries like Nepal, preparedness is a crucial investment for the cost of the health emergency of this pandemic in countries like Nepal. Preparedness to fight contagious diseases like COVID-19 starts with knowledge, a positive attitude and safe practices.[9]

Frontline healthcare workers (F-HCWs), including doctors, nurses, and paramedics, are prone to get infected.[10] Further leading to increased risk to the patients. Meanwhile, Nepal also reported the 1st

COVID-19 case that is a nurse on May 12, 2020, which has increased to 986 F-HCWs with at least 2 deaths on October 13, 2020.[11]

Nursing students are the future frontline health care providers, their quality training and teaching will affect the outcome. The outbreak response to the current pandemic of COVID-19 and exposure to hazards that put them at risk of infection. The rapid spread of the COVID-19 pandemic has become a major cause of concern for the healthcare profession all over the world[12]

Due to the rapid expansion of the pandemic of COVID-19, education institutions such as schools, colleges and universities have been shut down to prevent transmission of the virus. After the lockdown in India, Nepal also introduced a nation-wide lockdown with complete closure of educational institutions. Colleges re-opened after the lockdown in December 2020.

Clinical posting too resumed for nursing students amidst the pandemic.[13] It poses a challenge for the health care professional to remain aware of the latest information on the COVID-19 outbreak as everyone is working round the clock, staying with family, putting themselves and their family at risk, to fight against this pandemic.[12]

Not only have the hospitals, but Universities also have large numbers of students with high levels of close social contact making it likely to be a probable source for infection. It is very important to know the knowledge of university students on COVID-19 along with its uncertainties, make nursing students alert and aware regarding COVID-19. Therefore, nursing students should have adequate knowledge and competent practice since they are the most influential community in health matters.[14]

METHODOLOGY

A Descriptive, Cross-sectional study was conducted in two nursing colleges of Kathmandu valley from 11th March to 23rd March 2021. The non-probability convenience sampling technique was used to select a nursing college and undergraduate students were included by using the probability lottery method. A self-administered questionnaire was used to assess socio-demographic information, knowledge and practice. Data was collected by the researcher herself by visiting selected Nursing colleges. Two hundred sixteen students were enrolled as per their willingness for participation through lottery sampling techniques.

Validity and reliability were established by consulting an extensive review of the literature, consulting expert, and pretesting was done in 10% of the estimated sample size in a different setting with similar characteristics. Descriptive statistical methods in terms of frequency, percentage, mean, standard deviation were used to describe demographic data, knowledge and practice. However, inferential statistical methods i.e. chi-square test was used to see the association between socio-demographic variables, knowledge and practice. Likewise, Pearson correlation was used to reveals the relationship between knowledge and practice.

The knowledge and practice scores were calculated by recording separately, zero for the wrong answer and one for the correct, maximum score for knowledge was 13, for practice was 21.

Good knowledge: Score 70% or above
Poor knowledge: Score below 70%
Good Practice: Score 70% or above
Poor Practice: Score below 70%

A formal approval letter was taken from the concerned authority of Norvic Institute of Nursing Education (NINE) and B & B Medical Institute (BMI), Kathmandu. Ethical approval was taken from Nepal Health Research Council (NHRC). Informed verbal and written consents were taken from each respondent before data collection and asked for voluntary participation.

Findings/ Results

All the demographic characteristics are represented in Table 1. In this study, there were 216 Bachelors nursing students in which nearly more than half of the respondents 60.19% belonged to the age group of 21-25 years and only 0.93% from 31-35 years of age group. All of them were female. More than half of the respondents 54.63% had a Bachelor Science of in Nursing whereas 45.37% had a Bachelor of Nursing. The majority of the 75% were from urban. Nearly two-thirds of the 71.76% belongs to nuclear family. Half of the respondents 51.85% were staying in their own home while 5.56% were living with their relatives.

Table 1: Socio-demographic characteristics of participants

n = 216

Variables	Frequency	Percent
Age (in years)		
15-20	51	23.61
21-25	130	60.19
26-30	33	15.28
31-35	2	0.93
Mean± SD: 1.94±0.651		
Gender		

Female	216	100.00
Male	0	0.00
Education		
Bachelor of Nursing	118	54.63
Bachelor Science of Nursing	98	45.37
Area of Origin		
Rural Area	54	25.00
Urban Area	162	75.00
Types of Family		
Nuclear	155	71.76
Joint	55	25.46
Extended	6	2.78
Living Condition		
Hostel	33	15.28
Rented	59	27.31
Own House	112	51.85
With Relatives	12	5.56

The remaining part of table 1 reveals that more than two-thirds of respondents 73.50% were Buddhist while only 1.39% were Muslim. More than one-third 41.67% were from Janajati whereas only 3.24% were from Dalit ethnic group. The majority of the 80.56% had online courses related to COVID-19.

Table 2: Knowledge regarding COVID-19 among nursing students of Kathmandu valley

n=216

Variables	Frequency	Percent
COVID-19 Highly infectious		
Yes	211	97.70
No	5	2.30
Routes of Transmission of COVID		
Respiratory Droplets	216	100.00
Incubation Period		
1-14Days	206	
3-7 Days	5	95.37
1-7 Days	4	2.31
Don't Know	1	1.85
Main Features of COVID		0.46
Fever, Cough	210	97.22
Fatigue	4	1.85
Diarrhea	1	0.46
Don't Kow	1	0.46
Susceptible Age Group		
Under 5 Children	22	10.19
Young Adult	3	1.39
Middle Adult	7	3.24
People with Chronic Diseases	184	85.19
Treatment for COVID		
Yes	185	85.65
No	19	8.80
Don't know	12	5.56
If Yes [a],		
Conservative Management	114	21.23
Bed Rest and Isolation	182	33.89
Intake of Hot fluids	138	25.70
Antibiotics Therapy	103	19.18

Note [a] Multiple responses questions

Table 2 demonstrates almost all of the respondents mentioned respiratory droplets as routes of transmission of COVID. Regarding the incubation period, almost all of them (95.37%) responded correctly. Similarly, all of

the respondents 97.22% mentioned fever and cough as major features of COVID whereas 0.46% mentioned it as unknown. Likewise, the majority of the respondents 85.19% responded people with chronic diseases are the susceptible age group. Regarding treatment, the majority of the respondent (85.65%) were aware of the treatment of COVID which can be done by conservative management, bed rest and isolation, intake of hot fluids, antibiotics therapy.

Table 3: Practice regarding COVID-19 among nursing students of Kathmandu valley

		n=216
Variables	**Frequency**	**Percent**
Frequency of Hand wash or sanitize hand		
Every 30 minutes	12	5.48
Frequently	155	70.78
When contaminated	22	10.05
After touching hands with other	27	12.33
Cover Nose and mouth while coughing		
Yes	216	100.00
No	0	0
Throw used tissue in Dustbin		
Yes	215	99.5
No	1	0.46
Prevent Transmission of COVID [a]		
Frequent Hand Wash	201	20.83
Frequent Sanitizer	194	20.10
Use of Mask	209	21.66
Social Distance	194	20.41
Use of PPE	164	16.99
Use of PPE		
Yes	194	89.81
No	22	10.19
Types of PPE Used [a]		
Gown	186	21.38
Gloves	186	21.38
Mask	215	25.71
Face Shield	183	21.03
Goggles	100	11.49
Maintain Social Distance		
Yes	172	79.63
No	44	20.37

Note [a] Multiple responses questions

Table 3 reveals that more than two-thirds of the respondents (70.78%) practiced hand wash or sanitize frequently whereas only a few of the respondents 10.05% used to practice during contamination only. All of the respondents 100% used to cover their nose and mouth while coughing and almost all of the respondents 99.5% throw the used tissue in the dustbin. However, respondents practiced frequent hand wash, frequent sanitizer, use of mask, social distance, and use of PPE to prevent COVID transmission. Majority of the respondents 89.91% used PPE in which they use gown, gloves, mask, face shield, and goggles. Likewise, the majority of the respondents 79.63% maintained social distance whereas 20.37% don't maintained.

Table 4: Level of knowledge and practice among respondents

		n=216
Level of knowledge/ Practice	**Frequency**	**Percent**
Good Knowledge	172	79.63
Poor Knowledge	44	20.37
Good Practice	183	84.70
Poor Practice	33	15.30

Table 4 depicts that the majority of the respondents (79.63%) had good knowledge. Similarly, (84.7%) of respondents had a good practice.

Table 5: Correlation between Knowledge and Practice

n=216

Variables		Knowledge	Practice
Knowledge	Pearson Correlation	1	0.264
	Sig. (2-tailed)		.000
	N	216	216
Practice	Pearson Correlation	0.264	1
	Sig. (2-tailed)	.000	
	N	216	216

Note: Correlation is significant at the 0.01 level (2 tailed)

Table 5 shows that there was a significant relationship between knowledge and practice among nursing students.

Table 6: Association between Socio-demographic Variables and Level of Knowledge about COVID-19

n=216

Variables		Practice		x^2	P-VALUE
		Poor	Good		
Age in year	<= 20	12	39	0.411	0.522
	21+	32	133		
Marital status	Married	9	38	0.055	0.814
	Unmarried	35	134		
Educational Attainment	Bachelor of Nursing	20	98	1.877	0.171
	Bachelor Science of Nursing	24	74		
Area of Origin	Rural Area	8	46	1.370	0.242
	Urban Area	36	126		
Family Type	Nuclear	34	121	0.829	0.363
	Joint/Extended	10	51		
Living Condition	Hostel	8	25	3.632	0.163
	Rented	7	52		
	Own House	29	95		
Religion	Hindu	36	146	0.248	0.618
	Non-Hindu	8	26		
Online Course	No	11	31	1.089	0.297
	Yes	33	141		

Note: chi-square test: significant (P value ≤ 0.05 at confidence interval)

Table 6 displays that there is no association between age, education, marital status, and area of origin, family type, living condition, religion and online at p-value ≤ 0.05.

Thus, it is statistically insignificant at a 95% confidence level at a p-value ≤ 0.05.

Table 7: Association between Socio-Demographic Variables and Level of practice about COVID-19

n = 216

Variables		Practice Level		Total	x^2	P-Value
		Poor	Good			
Age in year	<= 20	8	43	51	0.009	0.926
	21+	25	140	165		
Marital status	Married	7	40	47	0.007	0.934
	Unmarried	26	143	169		
Educational Attainment	Bachelor of Nursing	14	104	118	2.341	0.126
	Bachelor Science of Nursing	19	79	98		
Area of Origin	Rural Area	8	46	54	0.012	0.913
	Urban Area	25	137	162		
Family Type	Nuclear	27	128	155	1.945	0.163
	Joint/extended	6	55	61		
Living condition	Hostel	10	23	33	7.921	**0.019**
	Rented	5	54	59		

	Own house	18	106	124		
Religion	Hindu	25	157	182	2.123	0.145
	Non-Hindu	8	26	34		
Online Course	No	6	36	42	0.04	0.842
	Yes	27	147	174		

Note: chi-square test: significant (P value ≤ 0.05 at confidence interval)

Table 7 represents that age, education, marital status, area of origin, family type, religion and online course of nursing students were statistically insignificant at 95% confidence level at p >.05. Whereas living condition is significant to practice at p=0.019, from this we can say living condition affects the practice of nursing students.

DISCUSSION
In this study among 216 respondents, almost all of the respondents (97.70%) had mentioned COVID as highly infectious and all of the respondents 100% responded respiratory droplets as routes of transmission of COVID. Regarding the incubation period, almost all of the respondents (95.37%) responded correctly whereas only 0.46% had responded incorrectly. Almost all of the respondents 97.22% mentioned fever and cough as major features of COVID whereas 0.46% mentioned it as unknown.

This study is supported by Joshi[12] stating the main mode of transmission of the virus is via respiratory droplets which were answered correctly by 86.24% of the respondents. For the incubation period, 79.36% responded correctly and 86.24% stated the clinical symptoms of COVID but only 13.76% had no responses towards it.

Another study by Maheshwari[16] has supported this study as 92.7% of the participants had extensive knowledge of COVID-19. The majority of the students had correct knowledge about the transmission routes of the virus. This may be due to the publicity of social media regarding COVID-19 regarding the awareness in our community.
In this study, the majority of the respondents 85.19% responded people with chronic diseases are the susceptible age group whereas very few of the respondents 1.39% mentioned young adults. Similarly in the study of Joshi[12] showed that 87.47% responded to the vulnerable age group while only 12.53% had no response in it.

In this study majority of the respondents (79.63%) had good knowledge whereas (20.37%) had poor knowledge among the respondents. In contrast to another study by Sharma[15] average knowledge was found in (68.3%) of the students and only (31.7%) had a good level of knowledge. This could be due to the lack of training, online courses taken by the students that affect their level of knowledge.

In this study, regarding treatment, the majority of the respondent (85.65%) were aware of the treatment of COVID which can be done by conservative management, bed rest and isolation, intake of hot fluids, antibiotics therapy. Likewise, a study conducted by Dossary et.al.[17] revealed that 96.85%, had an excellent knowledge of COVID-19 and (83.2%) of nurses reported significant prevention knowledge and treatment skills about COVID-19. Besides this level of awareness of nurses is fully aware which is 96.8% towards COVID-19 and only 1% is just aware of it. The majority of the study had revealed that nursing students, frontline health workers had a higher proportion of knowledge due to better preparedness to prevent the worst condition in developing country like Nepal which may not handle the crisis pandemic of COVID-19 that had occurred in china Wuhan.

In this study, more than two-thirds of the respondents 70.78% practiced hand wash or sanitize frequently whereas only a few of the respondents 10.05% used to practice during contamination only. All of the respondents 100% used to cover their nose and mouth while coughing and almost all of the respondents 99.5% throw the used tissue in the dustbin. However, respondents practiced frequent hand wash, frequent sanitizer, use of mask, social distance, and use of PPE to prevent COVID transmission.

Similarly, a study conducted by Joshi[12] had supported this study as 87.96% of respondents knew how to dispose of a used mask. 82.06% of the responders were aware of the various personal protective equipment (PPE) recommended for use in dealing with suspected COVID-19 patients in a healthcare setting. Not only had these 74.20 % respondents having very good knowledge about corrected usage of PPE. Likewise, around 83.54% were aware of the concept of hand hygiene too.

Similarly, another study done by Maheshwari[16] has also supported that a high percentage of participants used hand sanitizer, washed their hands, used a mask, covered a cough and sneeze with a tissue, which represented a good practice of the participants towards COVID-19. This could be due to the self-awareness regarding COVID-19 to prevent the crisis situation to self and family.

In this study, the majority of the respondents 89.91% used PPE in which they use gown, gloves, mask, face shield and goggles. This study is consistent with the study done by Joshi[12] around 95.58% know the face mask usage while going out in the current pandemic. 74.20% of respondents have very good knowledge about the correct usage of PPE too.

In this study, 89.81% of the participants were using PPE which uses a glove, mask, face shield, Google, and gown which contraindicating the study done by Tamang[11] only 56.4% of the participants were using PPEs which includes facemask, gown, and gloves. This could be due to the unavailability of PPEs as per need.

In this study, the majority of the respondents 79.63% maintained social distance whereas 20.37% doesn't maintain. In contrast in this study by Joshi[12] majority of 96.56% of respondents were aware of the benefits of social distancing. This study result is supported by earlier studies that indicated that participants who had good knowledge of COVID-19, transferred the knowledge into practice.

In this study, there was no association between age, education, marital status, and area of origin, family type, living condition, religion and online at p-value ≤ 0.05. Thus, it is statistically insignificant at a 95% confidence level at a p-value ≤ of 0.05.

In contradicting to the study done by salmann[18] stated that there was no significant difference ($p > 0.05$) between knowledge scores across all demographic variables except economic class.

Likewise in contrast to the study done by Maheshwari[16] showed no significant difference was found in mean knowledge concerning all demographic variables, but gender played a significant role in mean practice scores.

In this study, there was a significant relationship between knowledge and practice among nursing students. Similarly, another study done by Tamang[11] has also revealed that there is a significant correlation between knowledge, attitude and practice at the level of $p = 0.01$.

The reasons for inappropriate practice could be associated with the training they get, the working environment they have, etc. Most of our hospitals even did not provide sufficient sanitizers, PPEs, and even some hospitals, deducted the regular salary of the staff in such a harsh situation.

Inadequate knowledge increases the risk of infection and might jeopardize their and their family's lives. So, continuous knowledge update for this ever-changing pandemic by adequate training or course is crucial for nursing students to tackle the COVID-19 pandemic and prevention of its crisis.

Limitations
The study was limited to the nursing college of Kathmandu valley; therefore, findings do not truly represent all nursing students of the entire country which limits the generalizability of the study findings.

CONCLUSION
The findings of this study concluded that the majority of respondents had a good level of knowledge and practice about COVID-19 whereas the remaining one-fifth of respondents have a poor level of knowledge and practice. However, there is a statistically significant relationship between knowledge and practice on COVID-19 among nursing students. Besides this, there is no association between socio-demographic variables in relation to knowledge. Whereas in practice, only one of the socio-demographic variables i.e. Living condition is significant to practice. Although this study result is positive, it is suggested that undergraduate students should upgrade and strengthen knowledge and practice towards COVID-19 which enables the protection of self and patients from COVID-19 by controlling its spread.

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