

# Knowledge, Attitude & Practice Regarding Covid-19 Among Undergraduate Students In Bharatpur Metropolitan City

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## Abstract

**Introduction** The corona virus COVID-19 pandemic is the defining global health crisis of our time and the greatest challenge we faced since World War two. The virus has impacted different institutions including the colleges. As the colleges have started reopening slowly, colleges students are expected to not only help inform the surrounding community about the COVID-19, but also to be the role models of attitudes and practices in dealing with it. The objective was to assess knowledge, attitude & practice among undergraduate students. A cross-sectional analytical study was conducted among 417 respondents currently studying undergraduate level in different colleges of Bharatpur Metropolitan city were included as unit of analysis. An online self-administered questionnaire was preferred. Non probability purposive sampling technique was used. Collected data was entered in SPSS version 20 and analyzed using the Chi-square test & Pearson correlation analysis. Out of 417 respondents, the majority were female (52.8%), most of the respondents were from age < 20 years (71.5%). The study showed that 60.7% had good knowledge, 47.7% had positive attitude and 54.4% had good practice towards COVID-19. The level of knowledge was significantly associated with age ( $p=0.042$ ), mother occupation ( $p=0.012$ ). The level of attitude was significantly associated with age ( $p=0.023$ ) and faculty ( $p=0.005$ ), father education ( $p=0.055$ ) and family income ( $p=0.008$ ). The level of practice was significantly associated with gender ( $p<0.001$ ), marital status ( $p=0.092$ ), father occupation ( $p=0.022$ ) and mother occupation ( $p=0.001$ ). Expressed by Pearson's correlation, there was a positive correlation between two variables (Knowledge-Attitude), but it showed a weak correlation. ( $r=0.240$ ;  $p<0.01$ ) Most undergraduate students understood the basic information, possessed negative attitude and presented poor practice towards the outbreak of COVID-19 pandemic. These results may also help health authorities by engaging communities in implementation of protective health measures, including positive attitude and practices to reduce the risk of COVID-19.

**Keywords:** Knowledge, Attitude, Practice, COVID-19, Undergraduate students

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## I. Introduction

Corona virus disease 2019 (COVID-19) is defined as illness caused by a novel corona virus called severe acute respiratory syndrome corona virus 2, which was first identified amid an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China.<sup>1</sup> Corona virus quickly spread in other regions in China as well as other countries; human-to-human transmission was proved with incubation period that range from 2 to 14 days with the main clinical manifestations of fever, cough, and shortness of breath. Since it was declared as global pandemic causing high mortality and morbidity. Globally, there are an estimated number of 5.8 million cases and nearly half a million deaths at the end of May 2020<sup>2</sup>. The world is currently experiencing the COVID-19 pandemic. Taking into consideration the global situation of the pandemic, Government of Nepal officially decided to lockdown country on March 24<sup>th</sup>, 2020. Subsequently, lockdown extended nearly a dozen of times<sup>3</sup> According to WHO situation report its first outbreak in Nepal, from January 13, 2020 to January 6, 2022 total covid-19 cases: 8, 30,480, total deaths 11,602, total recovered cases 8, 13, 447.<sup>4</sup>

Knowledge, attitude, and practices (KAP) are important in controlling the spread of the disease. One of the most important groups for the purpose of tackling the pandemic is college students. College students are expected to not only help inform the surrounding community about the COVID-19 pandemic, but also to be the role models of attitudes and practices in dealing with it. In this way, science education can have a greater and longer impact on disease management compared to technological interventions.<sup>5</sup> Knowing the cause of the disease, signs/symptoms, and the possible methods of prevention can help in the prevention of disease. There is

necessity of understanding about the individual measures (physical distancing, proper hand hygiene, use of a face masks and face shield) that will serve as the first line of defense against this disease.<sup>6</sup>

Good knowledge, attitude & practice help to break the chain of transmission. The outbreak put entire educational system in unprecedented difficult situations; particularly, undergraduate students represented a special group that was at the ages to acquire autonomy and independence of life but with limited experiences. Reopening of schools after relaxation of restriction is another challenge with many new standard operating procedures put in place. In Nepal, there is few published articles on topic “knowledge, attitude & practice regarding COVID-19”. Therefore, researcher is interested in selection of this topic as a prime priority.

## II. Methods

**Study Design:** Descriptive, cross sectional web based survey was carried out to find out the knowledge, attitude and practice regarding COVID-19 among undergraduate students. Research was carried out in five colleges affiliated to Tribhuvan University. Total 417 undergraduate non- medical students were taken as sample for the study by using non-probability purposive sampling technique.

**Procedure methodology:** The study was conducted after the approval from Institutional Review Committee, Shree medical and technical college Bharatpur, Date: February 17, 2022 AD. Formal permission for the study was taken after submitting request to concerned authority of five different colleges affiliated by TU in Bharatpur metropolitan city. Data was collected in the period of 2 weeks. A web based (Google Form) semi structured questionnaire was used to collect the respondents information. The dignity of respondents was secured by giving right to reject or discontinue from the research study at any time. Confidentiality of the information was maintained by not disclosing the information with others as well as the data was merely used only for the study purpose and was destroyed after the completion of the study.

The instrument consisted of four parts.

Part I: Questions related to demographic information and covid-19 related variables.

Part II: Questions related to knowledge regarding covid-19. (20 items)

Part III: Likert scale related to attitude regarding covid-19.(10 items)

Part IV: Questions related to practice regarding covid-19.(10 items)

### Statistical analysis

The collected data was exported to Microsoft excel and later imported to Statistical Package for Social Sciences (version-20.0) for statistical analysis. Descriptive statistic to find out the knowledge, attitude and practice and inferential statistics was (chi square and Pearson correlation) applied to determine the association and correlation between knowledge, attitude and practice on COVID.

## III. Results

A total of 417 respondents, majority (71.5%) was in the age group of < 20 years and the mean age and SD of respondents was 22.09 ±3.256. Concerning gender, female (52.8%), Hinduism (92.8%), Brahmin/Chhetri (74.8%), unmarried (91.6%), management (42.2%), Chitwan district (98.1%), nuclear family (67.1%).

Regarding to father's education, majority was secondary (9-12 class) and in father's occupation, agriculture 35.7%. Similarly in mother's occupation, majority was homemaker covering 53.2%. Most of the respondents, 87.8% have family income <50000 and 20.9% respondents already had suffered from covid-19, 13.2% engaged in health information regarding covid-19, 97.6% had got covid-19 vaccine.

**Table:1**  
**Respondents' Socio-demographic information regarding COVID-19 n=417**

Socio-demographic Variable	Frequency	Percentage
<b>Age (in Years)</b>		
<20	298	71.5
>20	119	28.5
<b>Mean±SD 22.09±3.256 min 16 max. 24</b>		
<b>Gender</b>		
Male	197	47.2
Female	220	52.8
<b>Religion</b>		
Hinduism	387	92.8

Non Hinduism	30	7.2
<b>Ethnicity</b>		
Brahmin/Chhetri	312	<b>74.8</b>
Janajati	71	17
Others	34	<b>8.2</b>
<b>Marital status</b>		
Unmarried	382	<b>91.6</b>
Married	33	7.9
Divorced/separated	2	<b>0.5</b>
<b>Faculty</b>		
Education	167	40
Management	176	<b>42.2</b>
Arts & humanities	74	<b>17.7</b>
<b>Family</b>		
Nuclear family	280	<b>67.1</b>
Joint family	110	26.4
Extended family	27	<b>6.5</b>
<b>Father education</b>		
Illiterate	4	<b>1</b>
Literate	413	<b>99</b>
<b>Mother education</b>		
Illiterate	31	<b>7.4</b>
Literate	386	<b>92.6</b>
<b>Father occupation</b>		
Agriculture	149	<b>35.7</b>
Business	111	26.6
Service	89	21.3
Foreign Employment	45	10.8
Others	23	<b>5.5</b>
<b>Mother occupation</b>		
Agriculture	95	22.8
Business	30	7.2
Homemaker	222	<b>53.2</b>
Service	58	13.9
Others	12	<b>2.8</b>
<b>Family Income (monthly)Nrs</b>		
<50000	366	<b>87.8</b>
>51000	51	<b>12.2</b>

Most of the respondent's 52.3% had negative attitude level and 47.7% had positive attitude with Mean Score  $\pm$  SD 35.19 $\pm$  4.690 towards COVID-19. Majority 56.1% agrees that if covid case increases authorities should be restrict access to religious sites, shrines and mosques and restrict travel in covid-19 areas majority 61.9% agrees. Regarding early detection of Covid-19 can improve treatment and outcome, majority 67.6% agrees to the statement.

Practice regarding Covid-19 among undergraduate students in Bharatpur metropolitan city. Out of 417 respondents, 63.8% participate in social gatherings, 96.4% wear mask while getting out, 63.3% didn't touch front of mask when taking off, 62.1% didn't reuse mask, 96.9% cover while sneezing & coughing, 88% wash hands or use sanitizer before touching face, 78.4% refrained from shaking hands, 78.4% maintain 1 meter of social distancing, 92.8% follow WHO guidelines after vaccination, 84.7% stay home & self-isolate with minor symptoms.

**Table: 2**  
**Respondents' Level of Knowledge, Attitude and Practice regarding COVID-19 n=417**

Variables	Frequency	Percentage	Mean score(SD)	Minimum score	Maximum score
<b>Level of knowledge</b>			<b>14.97(2.254)</b>	2	19
Good	253	<b>60.7</b>			
Poor	164	<b>39.3</b>			
<b>Level of Attitude</b>			<b>35.19(4.690)</b>	10	46
Positive	199	<b>47.7</b>			
Negative	218	<b>52.3</b>			
<b>Level of Practice</b>			<b>7.54(1.422)</b>	2	10
Good	227	<b>54.4</b>			
Poor	190	<b>45.6</b>			

Table 2 showed level of knowledge, attitude and practice regarding Covid-19. Out of 417, 253(60.7%) had good knowledge and 164(39.3%) had poor knowledge. Regarding attitude, 199(47.7%) had positive attitude and 218(52.3%) had negative attitude. Likewise, 227(54.4%) had good practice and 190(45.6%) had poor practice.

**Table: 3 Association between level of Knowledge and selected Socio- demographic variables  
n=417**

Socio-demographic Variable	Level of Knowledge		Chi-square	p-value
	Poor (%)	Good (%)		
<b>Age (in Years)</b>				
<20	49(53.7)	38(46.3)	4.136	<b>0.042*</b>
>20	136(41.2)	194(58.8)		
<b>Gender</b>				
Male	95(48.2)	102(51.8)	2.544	0.111*
Female	89(40.5)	131(59.5)		
<b>Religion</b>				
Hinduism	168(43.4)	219(56.6)	1.112	0.292*
Non Hinduism	16(53.3)	14(46.7)		
<b>Ethnicity</b>				
Brahmin/Chhetri	135(43.3)	177(56.7)	0.371	0.831*
Janajati	33(46.5)	38(53.5)		
Others	16(47.1)	18(52.9)		
<b>Marital status</b>				
Unmarried	164(42.9)	218(57.1)	4.934	0.085**
Married	18(54.5)	15(45.5)		
Divorced/separated	2(100)			
<b>Faculty</b>				
Education	65(38.9)	102(61.1)	5.655	0.059*
Management	78(44.3)	98(55.7)		
Arts & humanities	41(55.4)	33(44.6)		
<b>Family</b>				
Nuclear family	117(41.8)	163(58.2)	2.01	0.366*
Joint family	53(48.2)	57(51.8)		
Extended family	14(51.9)	13(48.1)		
<b>Father education</b>				
Illiterate	3(75)	1(25)	0.325	0.610*
Literate	181(43.8)	232(56.2)		
<b>Mother education</b>				
Illiterate	18(58.1)	13(41.9)	2.64	0.104*
Literate	166(43)	220(57)		
<b>Father occupation</b>				
Agriculture	71(47.7)	78(52.3)	3.504	0.477*
Business	51(45.9)	60(54.1)		
Service	32(36)	57(64)		
Foreign Employment	19(42.2)	26(57.8)		
Others	11(47.8)	12(52.2)		
<b>Mother occupation</b>				
Agriculture	48(50.5)	47(49.5)	12.941	<b>0.012*</b>
Business	20(66.7)	10(33.3)		
Homemaker	90(40.5)	132(59.5)		
Service	19(32.8)	39(67.2)		
Others	7(58.3)	5(41.7)		
<b>Family Income</b>				
<50000	159(43)	211(57)	1.079	0.299*
>51000	23(51.1)	22(48.9)		

**Pearson chi-square (\*), Likelihood Ratio (\*\*)** Table 3 showed that level of knowledge was significantly associated with age (p=0.042) and mother occupation (p=0.012). Pearson chi-square & Like hood ratio were applied to study association between level of knowledge & selected Socio-demographic variables.

**Table: 4 Association between level of Attitude and selected Socio-demographic variables n=417**

Socio-demographic Variable	Level of Attitude		Chi-square	p-value
	Poor (%)	Good (%)		
<b>Age (in Years)</b>				
<20	52(63.4)	35(36.6)	5.174	<b>0.023*</b>
>20	163(49.4)	167(50.6)		
<b>Gender</b>				
Male	102(51.8)	95(48.3)	0.38	0.846*
Female	116(52.7)	104(47.3)		
<b>Religion</b>				
Hinduism	199(51.4)	188(48.6)	4.064	0.255**
Non Hinduism	12(75)	4(25)		
<b>Ethnicity</b>				
Brahmin/Chhetri	164(52)	148(47.4)	0.44	0.802*
Janajati	35(49.3)	36(50.7)		
Others	2(100)			
<b>Marital status</b>				
Unmarried	203(53.1)	179(46.9)	4.912	0.086**
Married	13(39.4)	20(60.6)		
Divorced/separated	2(100)			
<b>Faculty</b>				
Education	85(50.9)	82(49.1)	10.623	<b>0.005*</b>
Management	82(46.6)	94(53.4)		
Arts & humanities	51(68.9)	23(31.1)		
<b>Family</b>				
Nuclear family	143(51.1)	137(48.9)	3.789	0.150*
Joint family	56(50.9)	54(49.1)		
Extended family	19(70.4)	8(29.6)		
<b>Father education</b>				
Illiterate	4(100)		3.687	0.055*
Literate	214(51.8)	199(48.2)		
<b>Mother education</b>				
Illiterate	17(54.8)	14(45.2)	0.088	0.767*
Literate	201(52.1)	185(48.2)		
<b>Father occupation</b>				
Agriculture	88(59.1)	61(40.9)	5.28	0.260*
Business	56(50.5)	55(49.5)		
Service	43(48.3)	46(51.7)		
Foreign Employment	19(42.2)	26(57.8)		
Others	12(52.2)	11(47.8)		
<b>Mother occupation</b>				
Agriculture	44(46.3)	51(53.7)	2.698	0.746**
Business	18(60)	12(40)		
Homemaker	118(53.2)	104(46.8)		
Service	31(53.4)	27(46.6)		
Others	7(58.3)	5(41.7)		
<b>Family Income</b>				
<50000	201(54.3)	169(45.7)	7.083	<b>0.008*</b>
>51000	15(33.3)	30(66.7)		

**Pearson chi-square (\*), Likelihood Ratio (\*\*)**

Table 4 showed that level of attitude was significantly associated with age (p=0.023), faculty (p=0.005) and family income (p=0.008). Pearson chi-square & Like hood ratio were applied to study association between level of attitude & selected Socio-demographic variables.

**Table: 5 Association between level of Practice and selected Socio- demographic variables  
n=417**

Socio-demographic Variable	Level of Practice		Chi-square	p-value
	Poor (%)	Good (%)		
<b>Age (in Years)</b>				
<20	55(67.1)	27(32.9)	516	0.472*
>20	234(71.1)	95(28.9)		
<b>Gender</b>				
Male	114(58.2)	83(41.8)	22.345	<0.001*
Female	175(79.5)	45(20.5)		
<b>Religion</b>				
Hinduism	269(69.7)	117(30.3)	1.584	0.381*
Non Hinduism	19(63.3)	11(36.7)		
<b>Ethnicity</b>				
Brahmin/Chhetri	217(69.6)	95(30.4)	0.44	0.802*
Janajati	47(67.1)	23(32.9)		
Others	1(50)	1(50)		
<b>Marital status</b>				
Unmarried	266(69.8)	115(30.2)	4.768	0.092*
Married	23(69.7)	11(30.3)		
Divorced/separated		2(100)		
<b>Faculty</b>				
Education	121(72.5)	46(27.5)	1.315	0.518*
Management	120(68.2)	56(31.8)		
Arts & humanities	48(65.8)	26(34.2)		
<b>Family</b>				
Nuclear family	199(71.3)	80(28.7)	3.004	0.223*
Joint family	75(68.2)	35(31.8)		
Extended family	16(55.6)	12(44.4)		
<b>Father education</b>				
Illiterate	4(100)		1.775	0.830**
Literate	285(69.2)	127(30.8)		
<b>Mother education</b>				
Illiterate	23(74.2)	8(25.8)	0.352	0.553*
Literate	266(69.1)	119(30.9)		
<b>Father occupation</b>				
Agriculture	115(76.5)	35(23.5)	11.393	0.022*
Business	76(69.1)	34(30.9)		
Service	53(59.6)	36(40.4)		
Foreign Employment	27(60)	18(40)		
Others	19(82.6)	4(17.4)		
<b>Mother occupation</b>				
Agriculture	52(55.3)	42(44.7)	13.344	0.001**
Business	21(10)	9(30)		
Homemaker	162(72.5)	61(27.5)		
Service	47(81)	11(19)		
Others	8(66.7)	4(33.3)		
<b>Family Income</b>				
<50000	258(69.7)	112(30.0)	0.013	0.908*
>51000	31(68.9)	14(31.1)		

**Pearson chi-square (\*), Likelihood Ratio (\*\*)**

Table showed that level of practice was significantly associated with gender (p=<0.001), father occupation (p=0.022) and mother occupation (p=0.001).

**Table: 6**  
**Correlation between knowledge, attitude and practice scores**

Variables	Correlation coefficient	P value*
Knowledge-Attitude	0.240	<0.01*
Knowledge- Practice	-0.117	0.017
Attitude- Practice	-0.060	0.221

**\*Correlation significant at 0.01 level (2 tailed)**

Table 4 showed that, expressed by Pearson's correlation, there was a positive correlation between two variables (Knowledge-Attitude), but it showed a weak correlation. ( $r=0.240$ ;  $p<0.01$ ). However, positive correlation between Attitude-Practice and Knowledge- Practice was not seen.

#### IV. Discussion

Several studies have been conducted on COVID-19 knowledge among the general population and healthcare workers but no existing literature on the same topic were found after extensive literature search by using different combination of keywords. To our best knowledge, this is the first study that has been conducted with the purposes to assess the level of knowledge, attitude, and practice regarding COVID-19 among undergraduate students in Bharatpur metropolitan city. In this study, some socio-demographic factors that are associated with good knowledge, attitude, and practices towards COVID-19 found that most of the respondents have good knowledge, negative attitude and poor practice towards COVID-19.

There were significant associations between some socio demographic factors like age, gender, marital status, father education, father occupation, mother occupation. These findings are supported by the study conducted in China<sup>7</sup>, Bangladesh<sup>10</sup> and India<sup>13</sup>. This study revealed that students in the late adolescent age group (i.e. 16-20 years) were thrice more knowledgeable regarding COVID-19 compared to those who were above 20 years old. This finding is similar to a study done in China.<sup>7</sup> Concerning gender, most of the participants 52.8% was female and 47.2% was male, which is similar to study conducted in Nepal where male 48.2% and female 51.8%.<sup>8</sup> It is observed that majority of respondent was Brahmin/Chhetri 74.8% which is similar to study conducted in Nepal where Brahmin/Chhetri 70.9%.<sup>9</sup>

Likewise in this study majority of respondent (92.8%) were Hinduism, which is similar to the study conducted by<sup>9</sup> majority of respondent (93.1%) were Hindus by religion. In this study, most of the respondent were unmarried 91.6% which is slightly higher to study conducted in Bangladesh where 80.8% were unmarried<sup>10</sup>. This study showed that students living in nuclear family was 67.1% less likely to have good knowledge of COVID-19 pandemic than to those living within joint & extended family.

In this study, all of the students had heard about the Covid-19, with the majority (67.8%) gained information from social media. This finding was in line with studies done in Ethiopia, where 57.2% of the study respondents were heard about the Covid-19 from mass media like TV and Radio<sup>11</sup>. The outbreak was rapidly spreading all over the world. Thus, many people were concerned about disease; they tried to acquire more knowledge about the disease through sources including social media. Online news was broadcasting about do's and don'ts of the disease. The reason for this observation might be associated with increased access of students to social media such as Facebook through smart phones.

Out of 417 respondents, the overall good level of knowledge regarding COVID-19 pandemic among college students was 60.7%. This finding is lower than studies conducted in Debre Berhan University (73.8%)<sup>12</sup>, Malaysia (80.5%)<sup>14</sup>. The discrepancy might be due to differences in cut-values used to categorize the knowledge levels, sample size. Moreover, the results of present study shows, 47.7% had positive attitude with Mean Score  $\pm$  SD 35.19  $\pm$  4.690 towards COVID-19. These studies used 5 questions in three point Likert scale but in our study we used 5 point Likert scale with more attitude items related to college and undergraduate students. Moreover, the results of present study shows, 54.4% had good practice with Mean Score  $\pm$  SD 7.54  $\pm$  1.422 towards COVID-19.

The major limitation of the present study is the sample size. This study involved only five TU affiliated non-medical undergraduate students and hence the results based on the used sample sizes could not be generalized to all the populations of the country. A huge proportion of the sample populations were from the Brahmin/Chhetri ethnic group, which resulted in selection bias. This was internet-based questionnaire so there is also a high chance of errors or falsification of information.

#### V. Conclusion

Based on study, half of undergraduate non medical students had knowledge, attitude and practice regarding COVID-19. Most undergraduate students understood the basic information, possessed negative attitude and presented poor practice towards the outbreak of COVID-19 pandemic. These results may also help

health authorities by engaging communities in implementation of protective health measures, including positive attitude and good practices to reduce the risk of COVID-19. Such interventions should aim to keep the students updated with COVID-19 evidence and simultaneously providing them with opportunities to contribute to the pandemic as public educators and role models for communities, while also equipping them with appropriate knowledge and skills to prepare for future public health emergencies.

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### **CONFLICT OF INTEREST**

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