

ORIGINAL RESEARCH ARTICLE

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS PREVENTION OF COVID-19 AMONG UNDERGRADUATE MEDICAL COLLEGE STUDENTS

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ABSTRACT

Background: COVID-19 pandemic is a public health burden and threat all around the world. Good Knowledge, Attitude and Practice towards prevention can break the chain of transmission. The study aimed to assess the knowledge, attitude and practice towards prevention of COVID-19.

Methods: This was a cross sectional study conducted during 5th to 28th of October 2020 among undergraduate Medical College students. An online questionnaire was developed using Google Forms. The mean knowledge, attitude, and practice of the participants were assessed, and the scores were calculated. T-test and ANOVA were used for statistical analysis.

Results: Out of the total participants (n=274), 48.16 % were male and 51.5% were female. The mean age of the participants was 20.92±1.62 years. Among the total 69.3% had good knowledge, 67.5% had positive attitude and 73.4% had good practice towards prevention of COVID-19. In addition, demographic variable sex had a significant impact on practice scores. Male participants had higher practice scores. (P<0.05).

Conclusions: Undergraduate medical college students had good knowledge, positive attitude and good practices. Males and females had significantly different practices.

INTRODUCTION

The world is currently experiencing the COVID-19 pandemic.¹ On 30 January 2020, WHO declared it as a public health emergency of international concern and sought for the collaborative effort of all countries globally to prevent its rapid spread.² Taking into consideration the global situation of the pandemic, Government of Nepal officially decided to lockdown country on March 24th, 2020. Subsequently, lockdown extended nearly a dozen times since then.³

In the Kathmandu district, high case load (63.2% of National case load) has been observed and over half of the active cases in the country are currently home isolated which is posing problems in following up the clinical status.⁴ As per current evidence, the most important route of transmission of COVID-19 is human to human through respiratory droplets or direct contacts and both asymptomatic and symptomatic individuals can transmit the disease.⁵

With ongoing trial of vaccine and only symptomatic supportive treatment available, inhibition of virus rely on the preventive measures.⁶ People's adherence towards preventive measures

is essential for controlling the spread of COVID-19, which is affected by their knowledge, attitudes, and practices (KAP) towards COVID-19.⁷

Thus, it is important that the general public, healthcare worker, service provider and students in medical college adhere to preventive measures which are affected by their knowledge, attitude and practice towards COVID-19.⁸ The main aim of this study was to assess the knowledge, attitude and practice towards prevention of COVID-19.

METHODS

This online survey was conducted among the medical college students from 5th to 28 October 2020. This was an internet-based, cross-sectional analytical study. The study participants were undergraduate students pursuing their degree course in clinical health sciences (MBBS, Dental and Nursing).

The sample size was calculated using the formula:

$$\text{Sample size (n)} = Z^2 \times p \cdot q / e^2$$
$$= (1.96)^2 \times 0.8215 \times (1 - 0.8215) / (.0016)^2$$

=352

z = level of confidence according to the standard normal distribution (for a level of confidence of 95%, $z = 1.96$)

p = prevalence of knowledge=82.15% (Knowledge, attitude and practice regarding COVID-19 among healthcare workers in Chitwan, Nepal)⁹

d = tolerated margin of error =4%

The main instrument to collect data was online questionnaire using Google forms. Pretest was conducted by distributing developed draft survey questionnaire among 10 randomly selected undergraduate students to assess its validity and readability who were not included in the study later. Required changes were made before the final questionnaire survey was distributed to the research participants.

A self-administered questionnaire was developed after a thorough review of literature of previously published papers and following WHO guidelines.¹⁰ The structured questionnaire was developed in English and divided into 2 sections consisting total of 27 items. First section consisted of socio-demographic profile (5-item) and second section consisted of questions on Knowledge (9-item), Attitude (5-item) and Practice (8-item).

A correct answer was given 1 point. Overall knowledge scores ranged from 0-9 for each correct answers except in one of the multiple choice question so total score ranged from 0-12. Individuals scoring 10 or above were categorized as good whereas 7-9 scores were brought under moderate and 0-6 as poor knowledge. Scores of each respondent were calculated by summing up the correct responses.

Similarly for attitude scores, responses were provided using a 5-point Likert-type scale (1 = Strongly Disagree, 2= Disagree, 3= Not sure, 4=Agree, 5=strongly agree). Attitude score range from 1-5 for each answer given for total 5 questions. A total of maximum 20- 25 points would gain positive attitude, 12-19 points as neutral attitude and below 12 as negative attitudes.

For practice scores responses were provided using 3 point Likert-scale (1= Occasional, 2= Always, 0=Never) for total 8 questions. Maximum points of 9-16 will gain good practice, less than 8 points as poor practice.

Those who did not respond were sent up to three reminders. These reminders were sent at a gap of 3 days. The study included undergraduate students studying at Kathmandu Medical College in Nepal. Health care professionals, Interns and Postgraduate students were excluded from the study.

Ethical clearance was obtained from Institutional Review Committee of Kathmandu Medical College (Ref No: 0110202006) prior to the start of study. Questionnaire did not contain any identification details of the students and confidentiality was strictly maintained throughout the study. Upon clicking on the link in Google form, the first page assured the confidentiality of data, informed about

objectives and stated that the participation was purely voluntary. The participant's consent to participate in the study was implied when they clicked on the 'next' button to answer the questionnaire, and they had complete freedom either to decline or answer the questionnaire. To overcome Response bias and information bias in the study we used neutrally worded words, avoided the leading questions and keeping researcher's identity anonymous.

Responses from the Google Form was downloaded in the excel sheet format. Invalid data with incomplete response was cleared and coding for the responses was done. The data were analyzed using the Statistical Package for the Social Sciences software(SPSS)20. The correlation analysis (Pearson's correlation) was applied. Knowledge, attitude and practice (KAP) scores were compared among different groups based on demographic characteristics using one way analysis of variance (ANOVA) and t-test. A p-value of <0.05 was considered statistically significant for all the tests.

RESULTS

The questionnaire was sent to 352 respondents and the response rate was 77.8%. Total 274 students participated during the study. Among them, 48.16 % were male and 51.5% were Female. Table 1 showed the socio-demographic characteristics of the study participants. The mean age of the participants was 20.92±1.62. Nearly equal percentage of students lived inside and outside valley (44.5 % and 44.2%).

Table 1: Sociodemographic variables n-274

Variables	N (%)	
Age (Years)	20.92±1.62	
Sex	Male	132(48.2)
	Female	142(51.8)
Currently living	Inside valley	122(44.5)
	Outside valley	121(44.2)
	Outside country	31(11.3)
Religion	Hindu	255 (93.1)
	Buddhist	10 (3.6)
	Muslim	5 (1.8)
	Christian	4 (1.5)
Program enrolled in	MBBS	208 (75.9)
	BDS	38 (13.9)
	Nursing	28 (10.2)

The mean COVID-19 knowledge score was 10.1± 1.5 and 69.3 % had good knowledge. 98.9% of students knew that COVID-19 is a viral disease. More than 90% of students had knowledge about the incubation period and were aware that early symptomatic and supportive treatment can help most patients recover from the infection.

The mean attitude score for COVID-19 was 20.3±2.4, indicating 67.5% positive attitudes. High percentage of the students (97.4%) agreed that keeping 2 meter distance avoid spreading of this disease. In addition, the majority of the participants

(94.5%) supported that frequent hand washing with soap water or sanitizer can prevent the disease.

The mean score for practices for COVID-19 was 9.2±1.6, indicating 73.4% good practices among students. More than 70% of the participants avoided unnecessary travel in public transport or outing during the outbreak. Using the face mask during the outbreak was the most prevalent (92.3%) behavior reported by the participants. Also, a high percentage of participants used hand sanitizer washed their hands after using ATM machine, maintain social distancing and aware people around about COVID 19, which represented a good practice of the participants towards COVID-19.

Expressed by Pearson’s correlation, there was a positive

correlation between two variables (Knowledge-Attitude), but it showed a weak correlation. ($r=0.274$; $p<0.01$). However, positive correlation between attitude and practice was not seen (Table 2).

Table 2: Correlation between knowledge, attitude, and practice scores

Variables	Correlation coefficient	P-value*
Knowledge-Attitude	0.274	<0.01*
Knowledge- Practice	0.013	0.825
Attitude-Practice	0.035	0.565

*Correlation significant at 0.01 level (2 tailed)

Table 3: Comparison of KAP scores among different demographic variables

Variables		Knowledge score			Attitude score			Practice score		
		Mean±SD	t/F	p-value	Mean±SD	t/F	p-value	Mean±SD	t/F	p-value
Sex	Male	10.25±1.64	1.022†	0.308	20.12±2.37	-1.609	0.109	9.05±1.65	-2.03	0.04*
	Female	10.05±1.49			20.59±2.44			9.45±1.58		
Age (Years)	18-20	10.05±1.54	0.36 ††	0.69	20.06±2.33	1.67	0.18	9.20±1.45	1.31	0.87
	21-23	10.21±1.58			20.60±2.48			9.30±1.72		
	≥24	10.26±1.59			20.63±2.40			9.31±2.02		
Residence	Inside Valley	10.16±1.44	0.33††	0.96	20.81±2.10	4.08	0.018*	9.24±1.76	0.15	0.85
	Outsidevalley	10.12±1.68			20.08±2.72			9.30±1.52		
	Outside country	10.19±1.62			19.74±2.03			9.12±1.49		
Religion	Hindu	10.23±1.43	6.54††	0.002*	20.42±2.30	0.55	0.57	9.26±1.56	1.77	0.17
	Buddhist	9.60±1.26			19.70±2.16			8.50±2.46		
	Others	8.44±3.60			19.66±4.97			9.88±2.26		
Program	MBBS	10.24±1.59	3.26	0.04*	20.28±2.46	0.55	0.57	9.19±1.64	0.62	0.53
	BDS	9.55±1.40			20.71±2.17			9.44±1.67		
	Nursing	10.28±1.46			20.53±2.47			9.46±1.42		

*†t-test(t) ††Anova(F)

Table 3 described the scores of knowledge, attitude, and practices towards COVID-19 with respect to demographic variables such as sex, age, religion, residence and program they enrolled in. The knowledge scores of the female were slightly lower than that of males, although the difference was not significant ($P>0.05$). Higher scores of females were observed in the attitude and practice as compared with that of males. In addition, the difference in practice score was significant between different sex variable ($P<0.05$). The KAP score for the age-category of 21-23 was higher than the other categories, with no significant difference among groups ($P>0.05$).

With respect to the religions, participants belonging to the Hindu religion had more knowledge in comparison with the Muslim and others, the difference was also significant ($P<0.05$). Also, the same trend was observed in the attitude, however, Practice follow different trend. But again, this difference was not significant ($P>0.05$).

Knowledge among participants residing outside country was more in comparison to those inside country, although the difference

was not significant. Attitude towards COVID-19 among the group residing inside country was highly positive and significant ($p<0.018$). The knowledge scores among MBBS and Nursing groups were similar in comparison to dental and was significant ($P<0.04$).

DISCUSSION

In the present study, the knowledge, attitude, and practice of the medical students towards COVID-19 were assessed. We found that, during the COVID-19 pandemic, 69.3% of the participants had good knowledge of COVID-19. In addition, more than 67.5% of the participants had positive attitude towards COVID-19. The KAP score was less in comparison to other studies done in different Medical College in India,¹¹ China,¹² Jordan,¹³ and in Iran.¹⁴ Similar higher findings (scores) were found in different settings by Tomar¹⁵ and Kartheek,¹⁶ however, study done in community by Agrawal¹⁷ and in Ethiopia by Abay¹⁸ was similar to our findings. Participants were aware regarding cause of disease, incubation period, clinical symptoms, transmission, prevention and control

of disease, symptomatic and supportive treatment. Similar findings were found in the study done by Sukla,⁷ Taghrir,¹⁴ and Tomar¹⁵. No difference was found in knowledge in the study done in community and medical college students. The valid reason for this could be the spread of information through radio, television, mobile in every community around the world.

Higher percentage of participants agreed that keeping 2 meter distance avoid spreading of this disease and similar percentage supported that frequent hand washing with soap-water or sanitizer can prevent the disease. Similar response were found in the study done by Taghrir¹⁴, Kartheek¹⁶, Abay¹⁸. Though recommended guidelines of handwashing (for >20 secs) was different in those settings thus reflecting the inharmonic between information and implementation. Precautionary measures such as avoiding unnecessary travel in public transport or outing during the outbreak. using the face mask, using hand sanitizer after using ATM machine, maintain social distancing was well adopted by participants in this study. This` was quite similar in all aspects except wearing mask in the study done in Jordan by Ashraf¹³. This could be due to differences in regulations enforced by the state, cultural experience , the educational level or mask shortage in that particular area.

Significant difference was not found in mean knowledge or attitude scores with respect to demographic variables like sex, which played a significant role in mean practice scores, and this result was similar to the studies conducted in India by Maheshwari,¹⁰ which showed that practice scores were affected among sex variable. Practice score were more among females. However study done in china by Peng¹¹ showed significant difference on attitude score among sex difference. The knowledge scores of the female were slightly lower than that of males which was in contrast with studies of Maheshwari¹⁰ and Taghrir.¹³

There was positive weak significant correlation between

knowledge-attitude in this study which was similar to the study done by Tomar¹⁴, whereas no significant correlation was found between attitude and practice. We can explain this as even having good knowledge among medical college students, they could not change their behavior because behavior change takes long time to improve. The environment and culture also plays good role in changing practice. The study in Iran by Taghrir¹³ showed contrast findings of negative significant correlation between attitude and practice. The reason could be medical students as participants who had better knowledge than community people and knew about the consequences of prevention.

The major limitation of the present study is the sample size. This study involved only one medical college students and hence the results based on the used sample sizes could not be generalized to all the populations of the country. This was internet-based questionnaire so there is also a high chance of errors or falsification of information. Less number of demographic variables were used which is also a limitation.

CONCLUSION

Most undergraduate Medical college students understood the basic information, possessed positive attitude and presented good practice towards the outbreak of COVID-19 pandemic. Females and males have significantly different practices.

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