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COVID-19, Knowledge, Attitude and Practice among Students in a Tertiary Care Center, Nepal

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Abstract

Background: Health care professionals are thought to be knowledgeable about contemporary happenings in health around the world. We aimed to assess knowledge, attitude, and practice (KAP) regarding coronavirus disease 2019 (COVID-19) and compare it among dental and medical students of a University hospital, B. P. Koirala Institute of Health Sciences (BPKIHS), Dharan, Nepal.

Methods: A cross-sectional study was conducted among dental and medical students of BPKIHS. A google form was designed using standardized validated 25 item questionnaire pertaining to knowledge, attitude and practice regarding COVID-19. Following ethical approval, the questionnaire was sent through email to all dental and medical students, reminder mail was sent for three times and the response was collected. The data was analyzed for frequency and percentage. Chi-square was imputed for proportion differences between streams.

Results: Out of all 602 students of BPKIHS, one did not give consent and only 240 (BDS 116; MBBS 124) (39.93%) agreed and responded. Overall, 72.1% of correct responses were obtained from all the students on knowledge regarding COVID-19. Moreover, the correct response for each question was similar between BDS and MBBS students, ($p > 0.05$). Most of the students (87.91%) reflected a positive attitude and 91.83% abided by safe practices during this pandemic.

Conclusion: Although only 72.1% of the responses on knowledge related questions were correct, the majority showed positive attitude and practiced to minimize the spread of COVID-19 infection. Moreover, dental and medical students had a similar level of knowledge regarding COVID-19.

Keywords: Attitude; COVID-19; Dental and medical students; Knowledge; Practice.

Declarations

Ethics approval and consent to participate: Ethical approval was obtained from Institutional review committee, BPKIHS, Dharan, Nepal (Ref. no.: 468/076/077- IRC) and informed consent was taken from the participants.

Consent for publication: Data collection was anonymous. No images or other personal details of participants are presented here. The participants were informed about the details collected via Google form and consent was taken for the use of their details in a scientific publication.

Availability of data and materials: The data supporting the findings of this article are available from the corresponding author.

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As the first-line workers, compared to the general people who are restricted to home because of lockdown, healthcare professionals are amongst the commonly infected by coronavirus disease 2019 (COVID-19) [1]. Younger generation medical students are important stakeholders who can influence the health status and perceptions of their families and friends, as they are mostly deemed acceptable sources of health information by society [2]. Lack of proper knowledge about the disease is associated with negative emotion among people which can further complicate the attempts of preventing the spread of the disease [3]. To the best of our knowledge and literature search, we did not find any studies that assessed and compared the knowledge, attitude and practice regarding COVID-19 among dental and medical students in Nepal. We aimed to assess knowledge, attitude, and practice (KAP) regarding COVID-19 and compare it between the dental and medical students of B. P. Koirala Institute of Health Sciences (BPKIHS).

METHODS

A cross-sectional hospital-based study was conducted among dental and medical students of BPKIHS from 30th July 2020 – 15th September 2020. Following complete enumeration method, all dental and medical students (602) were approached. Students not willing to participate or not responding to questionnaire even after three reminders were excluded.

This study was conducted after the approval from the Institutional Review Committee of BPKIHS. A standardized and validated 25-item questionnaire was adapted from different studies [4-6]. The set of questions contained 12 questions on knowledge, eight questions on attitude, and five questions on practice. The tool included 12 questions on knowledge related to the signs and symptoms, infectivity, treatment, and isolation and quarantine in COVID-19. These questions were answered on a yes/ no basis with an additional "I don't know" option. Eight questions on attitude with responses as strongly agree, agree, neutral, disagree and strongly disagree were used to assess the concern towards family members and friends, the willingness to participate in anti-pandemic activity, and infection prevention and control programs. Five questions on practice were composed with responses yes/ no/ occasionally to measure hand hygiene behaviors, wearing masks, practicing social distancing, and respiratory etiquettes.

The email address of all dental and medical students was collected from the academic division of BPKIHS and the questionnaire was sent via google form. Approximated time to fill the form was 3 minutes. Reminder was sent thrice to the non-responding participants.

The age and gender of the participants were noted. The stream was categorized as Bachelor of Dental Surgery (BDS), and Bachelor of Medicine and Bachelor of Surgery (MBBS). The data collected was entered in Microsoft Excel Sheet and then transferred to SPSS (Statistical Package for Social Sciences, version 21). Frequency and percentage were calculated for knowledge, attitude and practice on COVID-19. Chi-square was imputed for proportion differences between streams. For this, contingency table was prepared by combining 'no' and 'don't know' responses. A p-value less than 0.05 was considered statistically significant.

RESULTS

Out of 602 students, 241 responded. One denied to give consent while 240 students consented to participate, out of which 116 were BDS and 124 were MBBS students. Their age (mean ± SD) was 21.32 ± 1.74 years. The ratio of male to female was 1:1.

In total, 72.1% of the total responses out of 2880 questions (240 x 12 questions) related to knowledge on COVID-19 were correct. The correct response for each question ranged from 18.8% - 100%. Most of the participants were knowledgeable on common symptoms related to COVID-19 (95.8%), its recovery (97.1%), severity (94.2%), and infectivity (84.6%), transmission through respiratory droplets of infected patients (97.9%), necessary measures (95.4%), effective ways to reduce infection (98.8%), and spread of infection through contaminated objects (94.6%). All students were aware that people who had contact with COVID-19 positive cases should be isolated in a proper place (100%). However, a low number of correct responses were noted in questions related to less common symptoms in a person infected with coronavirus (26.3%), use of a medical mask by an ordinary people (21.3%), and transmission by direct contact with infected person (18.8%). The correct response rates on knowledge were not significantly different between BDS and MBBS students **(Table 1)**.

More than half of the total participants (n = 134, 55.6%) were worried about their family members,

Table 1: Response of students to questions pertaining to knowledge of COVID-19 (n = 240). Values are presented as number (%).

Items	Correct Responses, n (%)			p-value*
	Total	BDS (n = 116)	MBBS (n = 124)	
1. Fever, dry cough and difficulty breathing are main symptoms of COVID-19.	230 (95.8)	112 (96.6)	118 (95.2)	0.75
2. Stuffy nose, running nose and sneezing are less common in persons infected with COVID-19.	63 (26.3)	35 (30.2)	28 (22.6)	0.81
3. There is currently no effective cure for COVID-19 but early symptomatic and supportive care can help patient recover.	233 (97.1)	112 (96.6)	121 (97.6)	0.75
4. Not all COVID-19 develop to severe cases. Elderly, chronic illness and obese are likely to be severe.	226 (94.2)	108 (93.1)	118 (95.2)	0.68
5. Patient with COVID-19 cannot infect virus to others when fever is not present.	203 (84.6)	97 (83.6)	106 (85.5)	0.67
6. COVID-19 spreads with respiratory droplets of infected persons.	235 (97.9)	114 (98.3)	121 (97.6)	0.99
7. Ordinary residents can wear general medical mask to prevent COVID-19 infection.	51 (21.3)	27 (23.3)	24 (19.4)	0.92
8. It is not necessary for child and young adults to take necessary measures.	229 (95.4)	109 (94.0)	120 (96.8)	0.20
9. Isolation and treatment of patient who are infected with COVID-19 are effective ways to reduce spread.	237 (98.8)	115 (99.1)	122 (98.4)	0.99
10. People who had contact with COVID-19 positive case should be immediately isolated in proper place	240 (100)	116 (100)	124 (100)	NA
11. A person can get COVID-19 through objects contaminated with coronavirus.	227 (94.6)	113 (97.4)	114 (91.9)	0.08
12. A person can get COVID-19 by touching other person with flu viruses and then touching their own mouth, nose and eyes.	45 (18.8)	19 (16.4)	26 (21.0)	0.88

**Chi-square test, NA: Not Applicable*

most of them (n = 128, 53.3%) strongly believed that active participation of health care workers could do the containment, however, five students (2.1%) had disagreed. Our students (n = 218, 80.9%) were ready to participate in anti-pandemic community programs. Both dental and medical students showed similar percentages of strongly agree and agree attitude towards COVID-19 **(Table 2)**.

Regarding the practice questionnaire, both BDS and MBBS students reported almost similar percentages to avoid COVID-19 infection **(Table 3)**.

DISCUSSION

Medical curriculum has more coverage on respiratory and communicable diseases, both theoretically and clinically, compared to dental curriculum. At the peak of the pandemic when both medical and dental doctors were involved in the management of COVID-19, we had planned this study to assess the possible differences in the knowledge, attitude and practice towards COVID-19 between dental and medical students of BPKIHS.

To the best of our knowledge and literature search similar studies comparing dental and medical students has not been done till date. Assessment of knowledge, attitude, practice and perception towards COVID-19 in different population groups has been done by few studies [4-12].

Our study revealed both dental and medical students were aware about the novel virus. The correct response rate ranged from 18.8% to 100% which is similar to the results portrayed by a multinational study [7]. The study by Zhong et al. in 2020 showed correct response rate ranging from 70.2 - 98.2% [5]. In

Table 2: Response of dental and medical students to questions pertaining to attitude towards COVID-19 (n = 240). Values are presented as number (%).

Items/ Statements		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. You think you will probably get COVID-19.	BDS	4 (3.4)	29 (25.0)	72 (62.1)	9 (7.8)	2 (1.7)
	MBBS	5 (4.0)	26 (21.0)	77 (62.1)	16 (12.9)	0 (0)
2. You are worried your family member may get COVID-19.	BDS	28 (24.1)	65 (56.0)	18 (15.5)	4 (3.4)	1 (0.9)
	MBBS	27 (21.8)	69 (55.6)	25 (20.2)	3 (2.4)	0 (0)
3. You will accept isolation facilities if you get COVID-19.	BDS	84 (72.4)	30 (25.9)	2 (1.7)	0 (0)	0 (0)
	MBBS	92 (74.2)	25 (20.2)	6 (4.8)	0 (0)	1 (0.8)
4. Prevalence of COVID-19 can be reduced by active participation of Health care workers in hospital and infection prevention and control programs.	BDS	63 (54.3)	49 (42.2)	4 (3.4)	0 (0)	0 (0)
	MBBS	65 (52.4)	42 (33.9)	12 (9.7)	4 (3.2)	1 (0.8)
5. If COVID-19 vaccine were available, you would have it.	BDS	66 (56.9)	35 (30.2)	15 (12.9)	0 (0)	0 (0)
	MBBS	75 (60.5)	31 (25.0)	14 (11.3)	3 (2.4)	1 (0.8)
6. You are ready to participate in anti-epidemic activities in community.	BDS	58 (50.0)	46 (39.7)	11 (9.5)	1 (0.9)	0 (0)
	MBBS	66 (53.2)	48 (38.7)	9 (7.3)	1 (0.8)	0 (0)
7. You should avoid going out to public places with friends and family.	BDS	66 (56.9)	44 (37.9)	6 (5.2)	0 (0)	0 (0)
	MBBS	78 (62.9)	38 (30.6)	6 (4.8)	0 (0)	0 (0)
8. You are afraid to contact with your friends and relatives who are just back from abroad.	BDS	50 (43.1)	59 (50.9)	6 (5.2)	1 (0.9)	0 (0)
	MBBS	60 (48.4)	48 (38.7)	15 (12.1)	1 (0.8)	0 (0)

Table 3: Response of dental and medical students to questions pertaining to practice towards COVID-19 (n = 240). Values are presented as number (%).

Questions	Responses	BDS (n = 116)	MBBS (n = 124)
1. Do you practice hand hygiene (washing hand with soap and water frequently and using hand sanitizer when required)?	Yes	110 (94.8)	115 (92.7)
	No	0 (0)	1 (0.8)
	Occasionally	6 (5.2)	8 (6.5)
2. Will you try stay at home and avoid crowded places?	Yes	111 (95.7)	121 (97.6)
	No	2 (1.7)	1 (0.8)
	Occasionally	3 (2.6)	2 (1.6)
3. Are you wearing surgical face mask when out in public?	Yes	111 (95.7)	111 (89.5)
	No	3 (2.6)	6 (4.8)
	Occasionally	2 (1.7)	7 (5.6)
4. Do you maintain social distance when you are out in public places?	Yes	105 (90.5)	109 (87.9)
	No	4 (3.4)	3 (2.4)
	Occasionally	7 (6.0)	12 (9.7)
5. Do you practice respiratory etiquette (Sneezing and coughing into tissue paper and disposing them in closed bin or sneezing and coughing onto elbow)?	Yes	97 (83.6)	105 (84.7)
	No	10 (8.6)	5 (4.0)
	Occasionally	9 (7.8)	14 (11.3)

our study least knowledge (18.8%) was seen in question related to transmission through direct contact. In contrary, in the study by Zhong et al. the correct response for transmission through direct contact was comparatively higher (97.3%) [5]. The students had information regarding the isolation and quarantine facilities and also the management of the disease. The reason for this could be easy availability of information in electronic and social media and webpages of Center for Disease Control and Prevention (CDC) and World Health Organization (WHO). Also the students' own nature of inquisitiveness, desire to learn about new things and getting updated especially in topics related to medical field might have added the outcome. There

was no statistical difference in the level of knowledge between dental and medical students. This highlights upon the high quality of basic and clinical teaching learning activities distributed equally among dental and medical students.

Both dental and medical students had presented similar responses for attitude towards COVID-19. Our findings on different aspects of attitude towards COVID-19, like family protection, acceptability towards isolation facility and vaccination, community health participation and abstinence from mass gathering were similar to studies by Huynh et al. and Wadood et al. [4, 6 - 10]. However, there was difference in the participants' thought regarding probability of getting infected with COVID-19. Majority (72%) of our participants were neutral, while in the study by Huynh et al., majority (66.5%) of the participants agreed to the probability of getting infected by COVID-19 [6].

Most of our dental and medical students were abiding safe practices during this pandemic. They were well versed with practicing hand hygiene measures, wearing mask, maintaining social distance and following respiratory etiquettes. Our findings were similar to the result of studies done among medical students in Iran and Uganda [11, 12]. Interestingly in the study by Wadood et al., done among students of non-medical streams (Statistics, Mathematics and Physics), even at the peak of the pandemic, 5.9% denied practicing hand hygiene and 32.1% did not avoid crowded places [4]. In our study only 0.8% denied practicing hand hygiene and 1.2% did not avoid crowded places. These practices were not in accordance to the guidelines released by WHO and CDC [13].

In the current study only 39.8% of the study population responded. We think the response rate was low because the data was collected through an online platform. We consider this as a major limitation of our study.

CONCLUSION

Although only 72.1% of the responses on knowledge related questions were correct, the majority showed positive attitude and practiced to minimize the spread of COVID-19 infection. Moreover, dental and medical students of our institute had a similar level of knowledge regarding COVID-19. They were ready to participate in anti-pandemic community programs abiding by safe practice measures.

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