



“KNOWLEDGE, ATTITUDE AND PRACTICES AMONG DENTAL STUDENTS REGARDING COVID-19 IN PATNA, BIHAR”

Clinical Research

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ABSTRACT

Introduction: Coronaviruses are enveloped positive-strand RNA viruses with a crown-like appearance due to the presence of glycoprotein projections on their surfaces. It primarily spreads person to person through close contact and contaminated surfaces, often via small droplets produced by the infected person through coughing, sneezing or talking. Dental Students in a dental college and their perceptions and behaviors could have a massive impact on the spread of a pandemic. Therefore, it is important to evaluate their understanding of the COVID-19 pandemic. **Materials & methods:** We conducted a cross-sectional study with the aim to access the knowledge, attitude and practices (KAP) associated with COVID-19 among dental students in Patna, Bihar. Data was obtained from 200 dental students both undergraduates and postgraduate students posted in clinical duty in dental colleges by simple random sampling. The questionnaire was distributed in the respective departments, calculations were done using Descriptive analysis. Number and percentages were used to compute results on categorical measurements. Comparisons between groups was done using chi-square test. P- value of > 0.05 was considered as statistically significant. **Results:** Study subjects were in the age group 23-25 years i.e. 93(46.5%) followed by the age group 26-28 years 91(45.5%), 126(63.0%) were males and 74(37.0%) were females, Knowledge of dental students, in relation to is COVID-19 contagious, it was found that 34(85.0%) 3rd year, 59(98.3%) final year, 48(98.0%) interns and 50(98.0%) post graduate knew that COVID-19 is contagious, while 6(15.0%) 3rd year, 1(1.7%) final year, 1(2.0%) interns, 1(2.0%) post graduate believed COVID-19 is not contagious, which when compared found statistically significant $p=0.005$. While 38(95.0%) 3rd year, 56(93.3%) final year, 37(75.5%) interns and 46(90.2%) post graduate agreed that COVID-19 affected their psychology, while 2(5.0%) 3rd year, 4(6.7%) final year, 12(24.5%) interns, 5(9.8%) postgraduate COVID-19 did not affect their psychology which when compared found statistically significant $p=0.010$. **Conclusion:** Dental students in the present study had good knowledge and positive attitudes regarding infection control in general, but showed poor compliance with the recommended infection control guidelines.

KEYWORDS

COVID-19, Airborne, Supportive treatment, viral infection.

INTRODUCTION:

On January 30, 2020, the World Health Organization (WHO) announced a public health emergency of international significance regarding a global pneumonia epidemic. The WHO called this disease the novel viral pneumonia coronavirus disease 2019 (COVID-19) on February 11, 2020. India reported its first COVID-19 case on 30 January 2020, in Kasaragod town in the state of Kerala, and had reported 49,391 cases (including 1,694 deaths) by 6th May 2020. To contain the disease, a nationwide lockdown was declared in India on 25th March 2020, which had been extended at least until 31st May 2020. The incubation period is around 5 days (range, 2–14 days) and common symptoms include fever, cough and shortness of breath. There is no known vaccine or effective antiviral treatment for COVID-19, but only symptomatic management and supportive therapy.²

Dentists may provide routes for virus transmission from unrecognized COVID-19-infected patients and patients under surveillance. It appears possible to have asymptomatic infections.³ Thus, the contamination may occur before symptoms of the disease appear. Relatedly, a recent clinical study showed that 29% of 138 COVID-19 patients hospitalized in Wuhan, China were healthcare professionals. Dentists who specialize in the field of public health dentistry are at an increased risk of contacting such an infection due to the nature of their work, which involves promoting oral health among their communities with limited resources. In this process, dentists may provide routes for virus transmission from unrecognized COVID-19-infected patients and patients under surveillance.⁴ It appears possible to have asymptomatic infections. Thus, the contamination may occur before symptoms of the disease appear. Routine dental practices that emit aerosols pose a risk to patients, dentists, and auxiliary staff, using aerosols during dental treatments may constitute a high-risk procedure for these people in respect of the inhalation of airborne particles, ocular transmission, causing them to be directly exposed to the virus.⁵

In a dental setting, as the dentist and their equipment are in close proximity to the patient, the chance of acquiring infection from the micro-droplets of an infected patient is high and there is a risk of cross-transmission. Therefore, the standard protective measures in daily

dental work are not effective enough to prevent the potential spread of coronavirus especially when a large number of droplets and aerosols are emitted from asymptomatic cases.⁶

Coping with the current situation is a challenge not only for dentists but also for dental students. Although dental school should provide adequate training on infection control and protection, suboptimal adherence to these protocols may affect students' confidence in treating patients with infectious disease, and this can be manifested in the current pandemic.⁷

Dental Students in a dental college and their perceptions and behaviours could have a massive impact on the spread of a pandemic. Therefore, it is important to evaluate their understanding of the COVID-19 pandemic. We conducted a cross-sectional study to access the knowledge, attitude and practices (KAP) associated with COVID-19 among dental students in Patna, Bihar.

MATERIALS AND METHODS:

The present study is aimed to assess Knowledge, Attitude and Practice towards COVID-19 among dental students in Patna. The Data was obtained from dental students both undergraduates and postgraduate students posted in clinical duty in dental colleges in Patna. The study design used in the study was descriptive cross-sectional. Study subjects who gave consent was included in the study. Subjects who were not cooperative. And those who were not willing to participate in the survey were excluded from the study. A total of 200 samples was included in the study from Patna in which it is divided into 3rd year, final year, intern and post-graduates. Subjects were selected from the dental colleges by Simple Random Sampling.

The duration of the study was of 2-month (October & November 2021), The proposed study was reviewed by the Ethical committee of Buddha Institute of Dental Sciences and Hospital, Patna and clearance was obtained.

Informed consent was obtained from each participant involved in the study. A structured close ended questionnaire be carefully prepared to

obtain general and other relevant demographic details. The data was collected using close-ended questionnaire which consist of 24 questions. The questionnaire was distributed in the respective departments. All questions were briefed properly prior filling in front of dental students. All the survey forms were collected from the respective departments and then data was entered in Microsoft excel for further analysis.

The questionnaire consisted of 4 major groups:

1. Socio-demographic details
2. Knowledge about the COVID-19 in dentistry.
3. Attitude towards COVID-19 in clinics.
4. Perceived obstacles towards practice in COVID-19.

Statistical Analysis:

Data were collected and statistically analyzed by using Statistical Package for the Social Sciences (SPSS) software (IBM, Corp 2013; version 22.0; Armonk, NY). Calculations were done using Descriptive analysis. Number and percentages were used to compute results on categorical measurements. Comparisons between groups was done using chi-square test. P- value of < 0.05 was considered as statistically significant.

RESULT:

The present study was conducted to assess the knowledge, attitude and practices regarding COVID-19 among dental students. The data obtained from the study were subjected to tabulation followed by subsequent statistical analysis.

Distribution Of Study Participants According To Educational Qualification

Among the total study subjects, majority 60 (30.0%) were final year followed by 51(25.5%) were post-graduates, 49(24.5%) were interns and 40(20.0%) were in 3rd year (Table 1, Graph 1).

Knowledge, Attitude And Practices Among Study Subjects Regarding Covid-19

Regarding knowledge of dental students, in relation to **is COVID-19 contagious**, it was found that 34(85.0%) 3rd year, 59(98.3%) final year, 48(98.0%) interns and 50(98.0%) post graduate knew that COVID-19 is contagious, while 6(15.0%) 3rd year, 1(1.7%) final year, 1(2.0%) interns, 1(2.0%) post graduate believed COVID-19 is not contagious, which when compared found statistically significant $p=0.005$ (Table 2, Graph 2-Q 1).

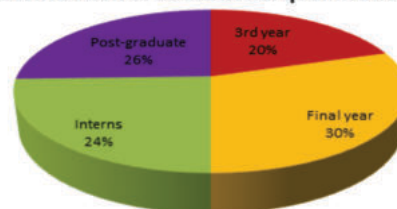
Majority of the study subjects, 38(95.0%) 3rd year, 56(93.3%) final year, 37(75.5%) interns and 46(90.2%) post graduate agreed that **COVID-19 affected their psychology**, while 2(5.0%) 3rd year, 4(6.7%) final year, 12(24.5%) interns, 5(9.8%) postgraduate COVID-19 did not affect their psychology which when compared found statistically significant $p=0.010$. (Table 2 Graph 2- Q 2). Knowledge of dental students, in relation to **symptoms of COVID-19**, it was found that 32(80.0%) 3rd year, 54(90.0%) final year, 42(85.5%) interns, 13(25.5%) post graduate knew that fever, dry cough, difficulty of breathing are the symptoms of COVID-19, while 7(17.5%) 3rd year, 6(10.0%) final year, 3(6.1%) interns, 0(0.0%) post graduates believed it to sore throat, none of them opted for headache and diarrhea while 38(74.5%) postgraduate 1(3.5%) 3rd year and 4(8.2%)interns had the knowledge of all symptoms mentioned when compared found statistically significant $p=0.000$. (Table 2 Graph 2- Q 3).

Majority of the subjects 34(85.0%) 3rd year, 53(88.3%) final year, 46(93.9%) interns, 51(100%) postgraduates **have asked questions such as fever, dry cough, or travel abroad while taking a history**, while 6(15.0%) 3rd year, 7(11.7%) final year, 3(6.1%) interns and 0(0.0%) post graduate did not take history of fever, dry cough or travel abroad from the patient which when compared was found statistically significant $p=0.038$ (Table 2 Graph 2 Q 4). Some of study participants i.e. 38(95.0%) 3rd year, 58(96.7%) final year, 47(95.9%) interns, 51(100.0%) post-graduate **routinely cleaned and disinfected clinical surface area** while, 2(5.0%) 3rd year, 2(3.3%) final year, 2(4.1%) interns, did not cleaned and disinfected clinical surface area routinely which when compared found statistically not significant $p=0.504$ ($p>0.05$) (Graph 3)

Table 1. Shows distribution of educational qualification among dental students regarding COVID-19

Educational qualification	n (%)
Third year	40 (20.0%)
Final year	60 (30.0%)
Interns	49 (24.5%)
Post-graduate	51 (25.5%)
Total	200(100%)

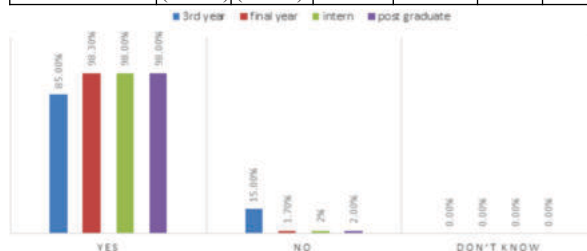
Distribution of Educational qualifications



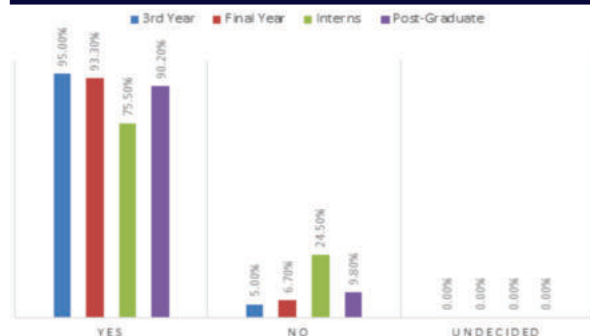
Graph 1. Shows distribution of educational qualification among dental students regarding COVID-19

Table 2. Shows knowledge, attitude and practices among study subjects according to educational qualification regarding COVID-19

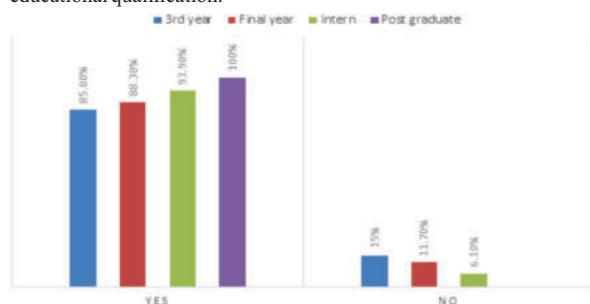
Variable	3rd year [N=40] n (%)	Final year[N=60] n (%)	Interns [N=49] n (%)	Post- graduate [N=51] n (%)	Chi- Square χ^2 value	P value
Q1. Is COVID-19 contagious?						
1)Yes	34 (85.0%)	59 (98.3%)	48 (98.0%)	50 (98.0%)	12.837	0.005 S
2) No	6 (15.0%)	1 (1.7%)	1 (2.0%)	1 (2.0%)		
3) Don't Know	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)		
Q2. What are the symptoms of COVID19?						
1) Fever, dry cough, difficulty of breathing	32 (80.0%)	54 (90.0%)	42 (85.7%)	13 (25.5%)	119.448	0.00 S
2) Sore throat	7 (17.5%)	6 (10.0%)	3 (6.1%)	0 (0.0%)		
3) Headache	0(0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)		
4) Diarrhea	0(0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)		
5) All of the above	1 (2.5%)	0 (0.0%)	4 (8.2%)	38 (74.5%)		
6) Don't Know	0(0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)		
7) None of the above	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)		
Q3. Did COVID-19 affect your psychology?						
1) Yes	38 (95.0%)	56 (93.3%)	37 (75.5%)	46 (90.2%)	11.306	0.01 S
2) No	2 (5.0%)	4 (6.7%)	12 (24.5%)	5 (9.8%)		
3) Undecided	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)		
Q4. Have you asked questions such as high fever, dry cough or travel abroad while taking an history from your patients in the last 3 months?						
1) Yes	34 (85.0%)	53 (88.3%)	46 (93.9%)	51 (100.0%)	8.429	0.038 S
2) No	6 (15.0%)	7 (11.7%)	3(6.1%)	0 (0.0%)		



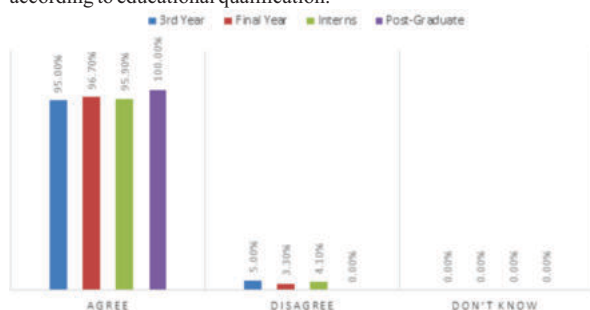
Graph 2 Q-1. shows the comparison of knowledge among dental students regarding Is COVID-19 contagious according to educational qualification



Graph 2 Q 3. shows the comparison of attitude among dental students regarding if COVID-19 had affected their psychology according to educational qualification.



Graph 2 Q 4. shows the comparison of attitude among dental students about asking questions such as high fever, dry cough or travel abroad while taking an history from their patients in the last 3 months according to educational qualification.



Graph 3. shows the comparison of practices among dental students regarding routinely Clean & Disinfect clinical Surface area according to educational qualification.

DISCUSSION:

In the era of COVID-19 dentistry is flagged as a high-risk profession on the unforeseen advent of the highly contagious viral infection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), also known as COVID-19, in early 2020. The pandemic was declared by the World Health Organization (WHO) on Mar 11, 2020, following which, overnight, curfews and lockdowns had been implemented worldwide. Globally, regulatory bodies provided infection control guidelines and standard operating procedures to curb the COVID-19 transmission in the dental settings.

These guidelines were related to clinical workspace, the use of personal protective equipment (PPE), disposal of PPE, disinfection of surfaces, and operatory to minimize the COVID-19 transmission. In March, 2020, the Dental Council of India (DCI) issued its first set of advisory, which were later updated during the course of pandemic. Some KAP studies were done to assess the "Knowledge attitude and practices among dental students regarding COVID-19" In this study, data was collected from 200 dental students. In the present study final year (30.0%) were more in number than 3rd year, intern and post-graduate, the collective reason behind could be amount would be reduced as in interns many of final year students failed or left college for another college which was in accordance with the study by Ruwaa Alawia et al⁵ in which final year were 59.0%. the **knowledge** of dental students regarding COVID-19, COVID-19 related knowledge of symptoms (70.5%), spread of COVID-19 (68.5%), contagiousity (95.5%), symptoms appear after 2-14 days (74.5%), knowledge of

supportive treatment (59.0%) was high among dental students, the reason behind knowledge could the awareness by social media, government initiative might also be the reason dental students have acquired the knowledge. These results were in accordance with the study conducted by Kavita Batra et al⁵ in which transmission knowledge was 89.8%, 88.7% knew of incubation period i.e. 14 days, 87.6% answered correct about symptoms. Regarding, the **attitude** of dental students regarding COVID-19, 87% percent of dental students preferred to avoid working with suspected COVID-19 patients, and 53.5% would refuse to treat a patient who showed up at the clinic with Upper Respiratory Tract (URT) symptoms or has recovered. On the other hand, 46% of the students would treat the patient and then ask him/her to go to the hospital, which was in accordance with the study conducted by Ruwa Awalia et al⁵ in which 58% refused to treat COVID patient. 82.5% of the dental students admitted their fear of transmitting the virus to their families. Total of 92.0 % of study population agreed that proper medical and travel history was a must before consulting the patient the reason behind this could be as health professional they knew about steps to taken in a pandemic, their fear to treat patients is valid because their parents of old age could be at risk of COVID-19 which was in accordance with the study conducted by Rahul Suresh Jaiswal et al⁷ in which 98% agreed on asking proper travel history from the patients. Regarding the **practices**, 84.5% of the dental students have reported that frequent cleaning of hands by alcohol-based hand sanitizer or soap and water are acceptable measures to prevent transmission of COVID-19, this was in accordance with the study conducted by Ruwa Awalia et al.⁵ in which 98.0% have agreed on cleaning hands with alcohol-based hand sanitizer, the reason behind this could be as in college more number of patients sometimes they could not follow proper protocols.

The majority (99.0%) also recommended the use of facemask as better protection against COVID-19 transmission and face shield was the most recommended PPE equipment to be used during dental treatment (99.0%) the reason behind could be they were taught about precautions to be taken from any viral disease which was in accordance with the study conducted by Rasha F. Sharaf et al¹¹ in which 56.3% thought surgical masks provide protection from COVID-19 Although dental students were hesitant about their willingness to provide care to patients during the pandemic, believed their role in educating others about COVID-19 is very significant, they were taught in seminar (95.5%) by their teachers in college showed their knowledge has increased this was in accordance with the study conducted by Sumaya Al-Attar et al¹⁰ in which 61% were taught in seminars and lectures.

Recommendations

- Dental practice will be considerably changed in the post-COVID-19 era. There is a greater need to have refresher courses for practicing dentists on new infection control strategies. Moreover, the curriculum in dental schools should be expanded to include competencies in pandemic and disaster relief. In addition, voluntary medical work should be made a part of the community dentistry curriculum.
- This volunteerism will leave a positive impact on developing the careers of young dentists. Hence, the contribution of dentists beyond dental practice in this pandemic situation will be appreciated by future generations.
- The outbreak of COVID-19 has significantly affected the practice of dentistry. Dental treatment can generate large amounts of aerosols and droplets mixed with the patient's saliva or blood. This poses a risk to dental professionals as SARSCoV-2 has been detected in saliva of infected individuals, so extraoral suction system to be used in dental colleges to decrease transmission of COVID-19.
- Air-purifiers should be used in close space rooms. Proper ventilations should be maintained in dental colleges to decrease the spread of COVID-19.
- The Government of India needs to devise effective public health strategies regarding mass vaccination and avoid assembling people at health-care units for vaccination. Many states have adopted door-to-door vaccination to avoid superspreading and to assist in the nation's mass vaccination efforts.
- Vaccine hesitancy should be tackled by awareness campaigns at the village level. Looking at the emerging SARS-CoV-2 variants, the government should focus on maintaining a high vaccination pace and coverage with a double-dose of COVID-19 vaccine and a shorter time between doses so that high efficacy rates can be achieved in the whole population of India.

CONCLUSION

Dental students are more prone to infection by COVID-19 virus in this pandemic than any other profession. Dental students in the present study had good knowledge and positive attitudes regarding infection control in general, but showed poor compliance with the recommended infection control guidelines.

The knowledge among dental students on SARSCoV-2 and COVID-19 seems to be consistent when evaluating the viral incubation period. However, viral survivability and recommended hand-soap washing time were significantly variable among the students.

Furthermore, a certain level of apprehension toward suspected COVID-19 patients existed among all dental students had higher odds of willingness to treat suspected COVID-19 patients. During a novel pandemic, a joint effort to strengthen knowledge among dental students needs to be reinforced within the dental professional team. Studies comparing knowledge at every stage of the pandemic are recommended.

This study indicated the adequate level of knowledge of the dental students of COVID-19 to protect themselves and the patients referred to the dental clinics. There is a need for training sessions and additional educational programs to improve the knowledge of dental students regarding the prevention strategies for COVID-19. Otherwise, the rate of infection would rise again when the dental schools are opened to offer their services. Further studies are required to assess the knowledge, attitude and practices among dental students regarding COVID-19 in Patna, Bihar.

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