

Keywords

COVID-19; Dental Students; Knowledge; Attitude; Perception; Infection Control; Cross-Sectional Study; Dental Education; University of Kerbala; Iraq

Authors

Rusul Natik Al-Khafaji¹

Department of Prosthodontics College of Dentistry, University of Kerbala, Karbala, Iraq
E. mail: rusul.natik@uokerbala.edu.iq.
ORCID ID: <https://orcid.org/0009-0002-3352-8314>

Aseel Abdulameer Radhi²

lecturer, Ph. D, Department of Prosthodontics College of Dentistry, University of Karbala, Karbala, Iraq. ORCID ID: <https://orcid.org/0000-0003-2039-1339>

Thanaa Ghani Nema^{3*}

Department of Conservative dentistry, college of dentistry, university of kerbala
Email: thanaa.g@uokerbala.edu.iq
ORCID ID: 0000-0001-5161-4211

Correspondence to:

Rusul Natik Al-Khafaji¹

Department of Prosthodontics College of Dentistry, University of Kerbala, Karbala, Iraq
E.mail: rusul.natik@uokerbala.edu.iq. ORCID ID: <https://orcid.org/0009-0002-3352-8314>

Assessment of dentistry students' Knowledge, Perception and Attitudes about Covid-19 Pandemic in Kerbala University

Abstract

Background: dentists and dental student are at high risk to have infected upper respiratory infectious diseases like severe acute respiratory syndrome coronavirus (SARSCoV-2). The risky environment of dental clinic for spreading the virus and the transmission of infection can be possible from asymptomatic patients therefore several protocols have been published to minimize human-to-human contact during the Covid-19 pandemic.

Aim of the study: assessment the knowledge, perception, and attitude of undergraduate dental students in kerbala university in Iraq, toward Covid-19 pandemic and infection control practices.

Materials and methods: A descriptive cross-sectional study was conducted among undergraduate dental students at University of Kerbala among fourth and fifth stages. An online questionnaire was used from December 2021 to January 2022.

Result: Data was analyzed using IBM SPSS Statistics 25. Statistical methods include descriptive statistic like Frequencies and percentages and inferential statistical analysis using chi-square (χ^2) tests of independence because the categorical nature of the data, were used to obtain the results. There were 128 participants, 36 (28.1%) of them were males and 92 (71.9%) of them were females. They have been found to have good general knowledge of Covid-19 infection and positive attitudes that make them ewer about important steps to be follow in dental training clinic to prevent spread contagious infection.

Conclusion: Covid-19 one of contagious upper respiratory disease need special and maximum precautions to be flown by dentist and dental student in their training sinter, this come from spread the knowledge about covid- 19 infection control protocols.

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INTRODUCTION

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in January 18, 2020, a real-time reverse-transcription polymerase-chain reaction (RT-PCR) has definitively identified pneumonia caused by the new corona virus, which was initially detected in Wuhan, China, in December 2019 (1). On March 11, 2020, the World Health Organization (WHO) declared Covid-19 (severe acute respiratory syndrome coronavirus 2; SARS-CoV-2) to be a pandemic due to its widespread dissemination. (2)

The potent pathogenicity and transmissibility and of SARS-CoV-2 (3). The high viral load and long virus-shedding period for sever infected Patients (4). The direct and indirect mode of transmission was identified (5).

Similar to other diseases like hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus infection, and acquired immune deficiency syndrome (HIV/AIDS), COVID-19 can spread through blood or saliva.(6)

The usual incubation period for COVID-19 is five to six days, although other reports indicate that it can be as little as 14 days or as long as 24 days. Patients who are suspected of being exposed to the virus must be placed in isolation for at least 14 days (7).

The nature of working procedures in dental clinics like close face-to-face contact with symptomatic-asymptomatic Covid-19 patients and exposure to saliva, blood in a confined area (8). Make it risk environment for spreading of this infection among dentists and their patients (9). Aerosols contain virus in saliva formed due to using highspeed handpieces and ultrasonic instruments Another reason for the high risk in dentistry in sepred of infection with COVID-19(10 ; 11).

On May 5, 2023, the WHO concluded the PHEIC for COVID-19.[12] Although the illness has persisted, doctors were unsure if it was still a pandemic as of 2024.[13][14] It is difficult to define pandemics and their ends, and depending on the definition, one may or may not have ended.[13][15] As of December 22, 2024, there have been 7,078,473 confirmed deaths due to COVID-19 [16]. The fifth-deadliest pandemic or epidemic in history is the Covid-19 pandemic.

WHO in 2022 published that more than 489 million people has infected withCOVID-19 and over 6 million deaths have been reported on 3 April 2022 that cause alarm and serious public health concern.

Strict and efficient infection control procedures are essentially and quickly published by the World Health Organization for dentists and medical facilities in countries-regions affected by Covid-19. additionally the American Dental Association (ADA) and the Centers for Disease Control and Prevention (CDC) have several recommendations.(17, 18).

Dental students as a part of their training on patient face great exposure from viruses and Covid-19 infection

because They still have little clinical experience, and their manual skills are inferior than those of dentists with training, so dental students need to knowledge about Covid-19 infection and mode of transmission and symptom of infected patients and protocols to protect themselves and stop the speared the infection.

Methods and Materials

Study Design

A descriptive cross-sectional study was conducted among undergraduate dentistry students at University of Kerbala / college of dentistry during the time of their clinical study (fourth & fifth stages).

128 students voluntary participated in the online google forms questionnaire survey to assess their understanding, attitude toward COVID-19 actions in dentistry practice, and assessment of the dangers. Was posted in December 2021 and January 2022.

Data sources and variables

A newly developed, English-language COVID-19 questionnaire survey was employed.

The tested information based on material and information sheets guideline published by WHO about Covid-19, Some questions were added and changed to help students comprehend them better.

The questions of the questionnaire were comprised of :-

- Demographic characteristics of population including their age, gender and stage of study.

- Questions that evaluate the knowledge and awareness of participants like incubation period, the signs and symptoms of the illness, the way that COVID-19 spreads, and infection control strategies to avoid contracting the virus.

- Questions that evaluate the perception and attitude of participants towards treating patients with Covid-19 and infection control in dental clinics.

•Statistical Methods

Descriptive statistics (Frequencies and percentages) and chi-square (χ^2) tests of independence was the most appropriate test because the categorical nature of the data, they were used to summarize and analyze the data by using SPSS statistics version 25

Results

Sociodemographic data

From 128 total 71.9% male, 28.1% female students participated in survey

All the participant students taking clinical courses in 4th stage 46.1% and 5th stage 53.9% with mostly age 20-25 years old (tab.1)

Table: 1 Demographics of the study participants

Characteristics	N	%
Age		
20-24	125	97.7
25-30	3	2.3
Gender		
Male	36	28.1
Female	92	71.9
Stage		
4th stage	69	53.9
5th stage	59	46.1

General knowledge and attitude regarding Covid-19 -knowledge

symptoms like (fever, cough, shortness of breath), Modes of transmission (respiratory droplets and close contact), and incubation period and isolation definition. (tab.2)

Most of the students correctly identified:
specific information about covid-19 virus like his
scientific name, incubation period, common sign and

Table: 2 General knowledge

	N	%
Which terms are used to refer to the Covid-19 virus?		
Severe acute respiratory disease (SARS)	9	7
Severe acute respiratory disease coronavirus 2 (SARS - CoV - 2)	56	43.8
Correct answer of all of above.	63	49.2
What signs of the Covid-19 infection are present?		
Fever	4	
Sore throat	1	
Shortness of breath	1	
Loss of taste and smell	13	
Correct answer of all of above	109	85.1
The transmission method		
Hand shake	3	2.3
Cough and sneeze	8	6.3
Correct answer of all three modes	117	91.4
The following is considered close contact for a Covid-19 infection:		
Individuals who came into close physical touch with someone who had COVID-19 (e.g., shaking hands).	6	4.7
Individuals who were directly exposed to infectious secretions from a COVID-19 case without protection.	5	3.9
Individuals who have spent time in a closed setting.	2	1.6
Correct answers of all of above.	110	85.9
Incubation period		
1–14 days	114	89.1
1–7 days	8	6.3
2–5 days	3	2.3
1–14 hours	3	2.3
Isolation means...		
The separation of individuals who exhibit symptoms and may have COVID-19 separating those without symptoms who have come into contact with an infected person with COVID-19	31	24.2
Comparable to quarantine	19	14.8
None of the above	72	56.3
	6	4.7
What are the sources of information?		
• Government organization.	12	9.4

• Scientific article	5	3.9
• Lectures	2	1.6
• Health professionals	17	13.3
• Friends and family	6	4.7
• Social media	15	11.7
all of above	71	55.5

-Attitudes and Perception

Most students realize the COVID-19 infection serious and potentially hazardous, Concern about the COVID-19 infection-control seminars was reported by a major part (25.8%) and (19.5%) Would like to attend a seminar on COVID-19 infection control.

Preventive practices in daily life measures show high percentage with mask use and frequent hand washing. In following the dental clinic measures show high percentage with using gloves, masks, face shields, and disposable aprons. (tab3)

Table 3 Attitudes and behavior towards Covid-19

Attitudes Towards COVID-19		
How do you perceive the COVID-19 infection in general?		
• Moderately dangerous	109	85.2
• Mildly dangerous	14	10.9
Not dangerous	5	3.9
Did you attend a seminar on COVID-19 infection control?		
Yes		
No	33	25.8
Would like to	43	33.6
Not interested	25	19.5
	27	21.1
Using preventive measures in daily life style Which of the following measures do you implement in your daily life against Covid-19?		
Mask	110	86.6
Gloves	69	54.3
Frequent hand washing	96	75.6
Using Cologne / Colonial tissue etc.	34	26.8
No handshaking / no embracing / no kissing	60	47.2
not being in crowded places	69	54.3
Frequent ventilation for a healthy indoor environment	49	38.6
Other	19	15
Which of the following measures do you implement in educational dental clinic against Covid-19?		
Mask		
N95 Mask	100	78.7%
Gloves	45	35.4%
Goggles	101	79.5%
Face shield	44	34.6%
Bonnet	86	67.7%
Disposable apron	20	15.7%
Frequent hand washing	49	38.6%
Frequent hand sanitizing	76	59.8%
Other	81	63.8%
	19	15.0%

Using chi-square (χ^2) tests of independence for the categorical data:

- correlation between gender and seminar attendance shows no statistically significant difference ($p > 0.05$), indicating similar exposure across genders.
- correlation between academic stage and knowledge score show no statistically significant difference ($p >$

0.05) but (5th stage) students tended to show better knowledge and stricter infection-control practices because the effect sizes is large (cramer s $V=0.262$). (20) correlation between seminar attendance and preventive practices show students who attended seminars were significantly more likely to use comprehensive infection-control measures in clinics ($p < 0.05$).

Pearson correlation analysis shows weak but statistically significant positive correlation between knowledge score

and infection-control practice score ($r = 0.21$, $p = 0.01$) $p < 0.05$.

Knowledge score rang from (0-6)

Knowledge Level based on Cut-offs Percentage

Level	Percentage	Score (out of 6)
Poor	<50%	0–2
Moderate	50–75%	3–4
Good	>75%	5–6

Preventive practice score rang from (0-18)

Preventive practice level based on Cut-offs Percentage

Level	Percentage	Score (out of 18)
Poor	<50%	0–6
Moderate	50–75%	7–12
Good	>75%	13–18

Descriptive statistics (Minimum, Maximum, Mean, Std.) for the Knowledge score and Preventive practice score (tab 4)

	N	Minimum	Maximum	Mean	Std. Deviation
score1	128	1.00	6.00	4.5469	1.04888
score2	128	.00	18.00	8.8047	4.22601
Valid N (listwise)	128				

Correlations			
		score1	score2
score1	Pearson Correlation	1	.213*
	Sig. (2-tailed)		.016
	N	128	128
score2	Pearson Correlation	.213*	1
	Sig. (2-tailed)	.016	
	N	128	128

Discussion

Since the infectious diseases as covid – 19 still have problem for dental student when managing patient as a part of their clinical training, there is great requirement for assessment the knowledge and how can deal with these infectious diseases by dental student in dental universities and what the safe practice for the students in their clinical training. Insufficient information or negative attitudes can endanger the health and safety of dental personnel as well as patients, and they may even have an impact on how the health care system operates.

In this study based on data collected from December 2021 to January 2022 at University of Kerbala in Iraq ,examined the knowledge and attitude dentistry students about COVID-19

dental students in their clinical courses are more likely to become sick and spread infectious diseases like COVID-19 because they have direct patient contact and they operate with rotating devices that release aerosols. (10). Thus, it is important to assess the student's knowledge and attitudes to infection control after the first implemented by the Iraq government on this disease due to their role in preventing the spread infection.

General knowledge of dental students was assessed in this study by asking them about basic information about COVID-19 infection like symptoms, mode of transmission, and incubation period of the virus. Students

show moderate to good knowledge (mean=4.5) about COVID-19 infection. That in agreement with study made in North India at a tertiary care center consist of 238 medical/dental undergraduate students across all professional years showed no significant differences by year/religion and medical students demonstrated satisfactory foundational knowledge and preventive practices for COVID-19(21).and in agreement with study conducted in Austria in (march 2020)which is consist of cross-sectional survey among165 dentistry students in clinical terms (9th-12th semester) at Medical University of Vienna, showed good general knowledge about COVID-19.(22)

Most students109(85.2%) realize the COVID-19 infection serious and potentially hazardous, this due overall data about confirmed cases infected with coved-19 According to World Health Organization (WHO) reports, Iraq recorded approximately 597,774 confirmed cases in 2020, reflecting the first major wave of infection in the country. In 2021, the number of cases increased further, with over 379,000 additional cases reported during the early months alone, indicating a continued and intensified spread of the virus (23)

In terms of mortality, Iraq experienced a notable burden of COVID-19-related deaths. Early in the pandemic (March 2020), the country had already reported over 630

cases and 46 deaths. By 2021, COVID-19 had become one of the leading causes of death in Iraq, with significant mortality rates reported (24-25)

this article surveyed and synthesized guidelines from major dental and public health organizations, including the American Dental Association (ADA), British Dental Association (BDA), New Zealand Dental Association (NZDA), Scottish Dental Clinical Effectiveness Program, Indian Endodontic Society/IFEA, American Association of Endodontists (AAE), and the WHO and CDC. They contextualized these guidelines with the virology and transmission literature available as of April 2020.

71(55.5%) of students had their information about COVID-19 infection from various sources like lectures, scientific articles, friends and family, health professionals, and good present depend on social media.

Students have moderate attitude (mean=8.8047) for COVID-19 infection in the daily life like using mask (86.6%), and frequent hand washing (75.6%) were that main preventive measures against COVID-19 infection and They also used gloves (54.3%) and not being in crowded areas (54.3%).

During clinical work, dental students aware the importance of using personal protective measures like using mask (78.7%), gloves (79.5%), face shield (67.7%), frequent hand sanitizer (63.8%), and disposable apron (38.6%). These are the main and simplest ways of prevention to protect both patients and dentists from infection.

Conclusion

This study demonstrated that the undergraduate dental students at Kerbala university have a moderate to good level of knowledge regarding COVID-19, with positive attitudes and acceptable infection-control practices. Also, the result showed high level of following the recommended preventive practices in both daily life and clinical environments. Strong educational program will help the future dental professionals to be well prepared to manage infection risks and effectiveness of dental clinical practice.

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