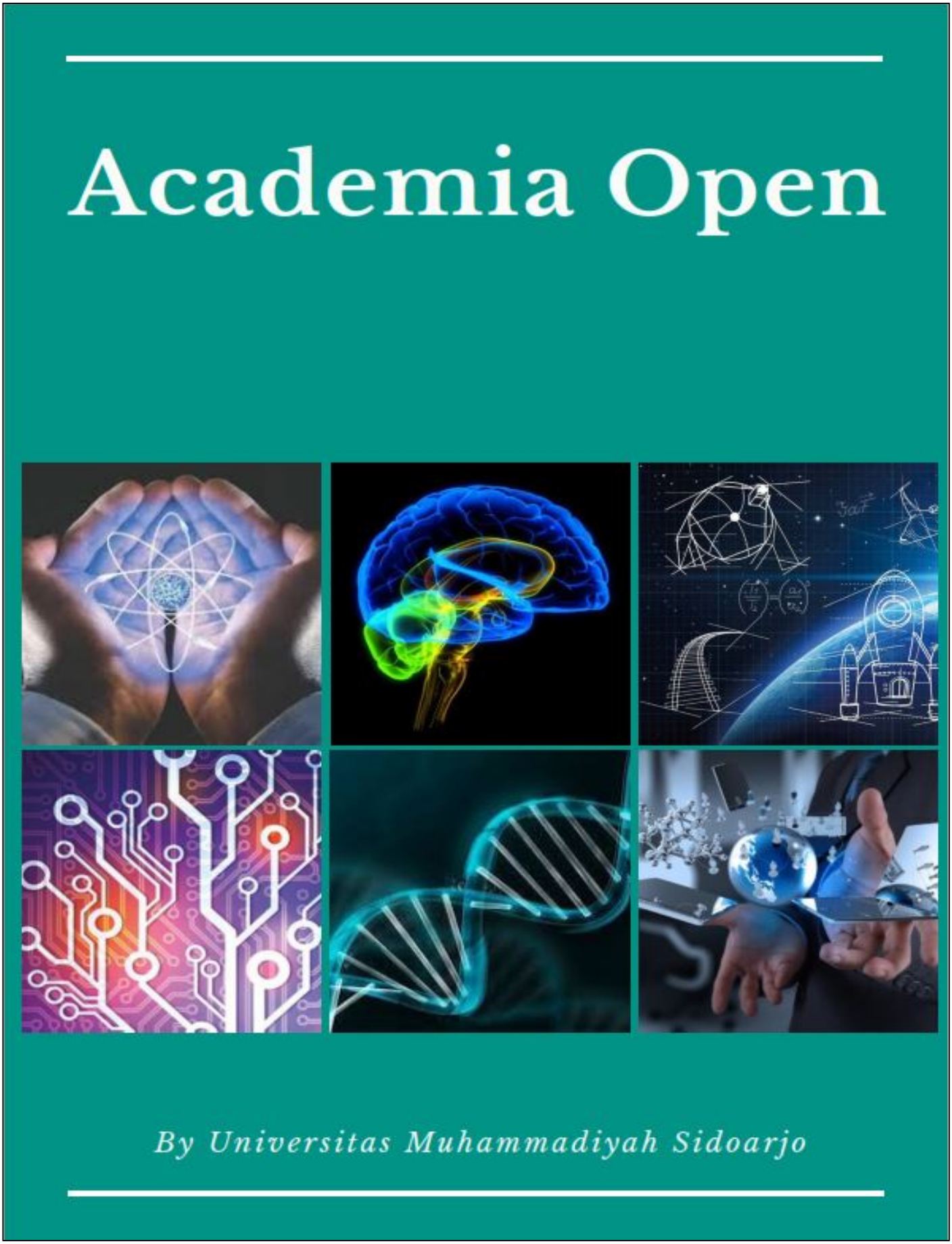
Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

Table Of Content

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)



ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

Originality Statement

The author[s] declare that this article is their own work and to the best of their knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the published of any other published materials, except where due acknowledgement is made in the article. Any contribution made to the research by others, with whom author[s] have work, is explicitly acknowledged in the article.

Conflict of Interest Statement

The author[s] declare that this article was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright Statement

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

EDITORIAL TEAM

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

Article information

Check this article update (crossmark)

Check this article impact (*)

Save this article to Mendeley

(*) Time for indexing process is various, depends on indexing database platform

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

A Study on The Level of Knowledge Among Dentistry Students on Infection Control Methods in Dental Colleges in Iraq

Sebuah Studi tentang Tingkat Pengetahuan Mahasiswa Kedokteran Gigi tentang Metode Pengendalian Infeksi di Perguruan Tinggi Kedokteran Gigi di Irak

Maher M. Jwaid, maher.m@huc.edu.iq, (1)
Department of Dentistry, Al-Hadi University College, Baghdad-10011, Iraq., Iraq

Zaid A. Abdulhussein, zaid@gmail.com, (0)
Department of Dentistry, Al-Hadi University College, Baghdad-10011, Iraq., Iraq

Artem Teterin, artem@gmail.com, (0)
Department of Dentistry, Al-Hadi University College, Baghdad-10011, Iraq, Iraq

(1) Corresponding author

Abstract

Infection control is essential in dentistry to ensure patient and practitioner safety. However, gaps often exist between theoretical knowledge and practical implementation. This study assessed the knowledge, attitudes, and practices of senior dentistry students regarding infection control methods, focusing on critical areas such as handling dental chairs, sterilization processes, use of personal protective equipment, and tool storage. A questionnaire was administered to 666 participants, comprising first- to fifth-year dental students and newly graduated dentists from various academic institutions in Iraq. Results revealed that while 61.1% of respondents demonstrated adequate theoretical knowledge of sterilization procedures, adherence to best practices was inconsistent. For instance, only 10.2% of participants consistently wore protective eyewear, and 18.2% left dropped instruments unattended during procedures. Disparities in responses were statistically significant ($p > 0.05$), highlighting knowledge gaps in the practical application of infection control protocols. This study's findings underscore the need for systematic interventions to bridge the gap between knowledge and practice, emphasizing the role of regular seminars, practical workshops, and curriculum revisions to reinforce infection control adherence. The study provides novel insights into the critical yet underexplored area of infection control practices among dentistry students in developing countries, highlighting institutional and behavioral factors influencing compliance. These findings have broad implications for improving infection control training programs and promoting safety standards in dental education and practice.

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

Highlights:

1. Assess dental students' infection control knowledge, attitudes, practices.
2. Questionnaire for preclinical and clinical students; 666 participants analyzed.
3. High knowledge, poor adherence; recommends annual seminars to improve compliance.

Keywords: dental students, infection prevention, and sterilization methods

Published date: 2024-12-31 00:00:00

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

Introduction

According to the World Health Organization, infection prevention and control (IPC) is a methodical strategy and workable remedy to stop infection-related harm to patients and healthcare professionals (1). Its foundations are in the social sciences, epidemiology, infectious disease science, and healthcare systems.

The dental team must come into direct touch with tissues and oral fluids, such as blood and saliva, as part of their work. Numerous bacteria and viruses, including mycobacterium tuberculosis, the hepatitis B and C viruses, the human immunodeficiency virus (HIV), the mumps, influenza, and rubella, can be found in these tissues and fluids (2). Since infections can spread from patient to patient, patient to dental team, or dental team to patient, the risk of infection transmission extends beyond patients to the entire dental team, including the dentist, assistants, nurses, laboratory technicians, and even janitors (3). It is well-known that treating every patient as potentially infectious to stop disease transmission is essential to infection control (IC) (4). Future dentists have only sometimes followed these guidelines, even at dentistry colleges (5).Dental education can be a significant component of a dentist's training program, assisting in adopting appropriate attitudes and understanding regarding infection control practices (6). This study aimed to examine dental students' knowledge, attitudes, and practices about various infection prevention strategies in Iraqi dental schools

Methods

This study used a questionnaire with ten questions about various aspects of infection control—including handling instruments before and after being placed in the sterilizer, serialization techniques, personal protective equipment, surface disinfection techniques, and instrument handling—. Dental students received the surveys and filled them out right away.

The following categories were present on the questionnaire form:

1. Gender

2. Academic year.

3. How do you store the clinical instrument equipment?

4. Actions made following the use of dental instruments.

5. Using the dental chair once therapy is complete.

6. Reaction scenario if instruments unintentionally fall to the ground.

7. If the spittoon is cleansed following a treatment.

8. If safety glasses are used while receiving therapy.

9. Understanding of how the sterilizer functions.

10. Donning a medical gown in a dental office is significant because it helps with infection control.

The statistical analyses of the study were performed using the SPSS 25.0 software produced by IBM Inc., located in Chicago, IL, USA. The descriptive metrics were presented in a tabular format, comprising frequency, percentage, and mean values. The statistical technique employed in this study was chi-square analysis, which was supplemented with Monte Carlo correction. This approach was utilized to investigate the associations between categorical variables. The One-Way Analysis of Variance (ANOVA) compares independent groups, whereas the Independent Sample T-test compares two independent groups. The frequency test was utilized to investigate the relationships between categorical variables. Throughout the investigation, a fixed level of significance of 5% was established to accommodate the potential occurrence of a type-I mistake. The assessment of statistical significance involved comparing the resultant p-value with a predetermined threshold of 0.05.

Result and Discussion

Result

The present study involved 676 participants, including newly graduated dentists and undergraduate students from various academic institutes in Iraq. The final analysis revealed that 20.7% (n=140) of the participants were newly

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

graduated dentists, while 32.1% (n=217) were fifth-stage dental students. Additionally, 19.7% (n=133) of the participants were fourth-stage dental students. The remaining population was distributed among the dentistry college's first, second, and third stages, accounting for a total percentage of 27.5% (n=186), as depicted in Figure 1.

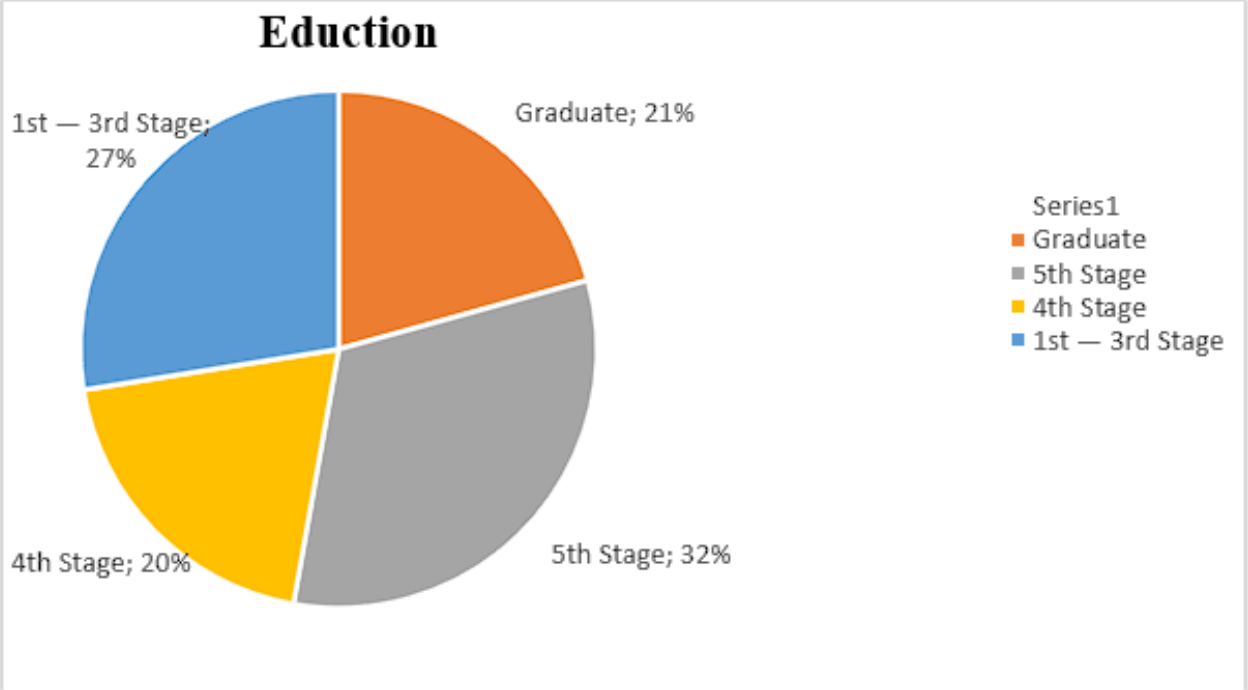


Figure 1. *Distribution of participant according to the educational stage*

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Actions made following the use of dental instruments.	57.980	675	0.000	3.504	3.39	3.62
Using the dental chair once therapy is complete.	56.570	675	0.000	3.064	2.96	3.17
Reaction scenario in the event that instruments unintentionally fall to the ground.	55.517	675	0.000	3.572	3.45	3.70
If the spittoon is cleansed following a treatment.	63.620	675	0.000	3.947	3.82	4.07
If safety glasses are used while receiving therapy.	65.744	675	0.000	3.732	3.62	3.84
Understanding of how the	73.808	672	0.000	1.386	1.35	1.42

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

sterilizer functions.						
The significance of donning a medical gown in a dental office and how it helps with infection control.	80.808	673	0.000	2.408	2.35	2.47

Table 1. *Distribution of the questioner answers*

Upon analyzing the collected responses, it was seen that there existed a notable disparity across all parts of the questionnaire, with a p-value > 0.05, as depicted in Table 1. When analyzing the responses to the initial question regarding the procedures undertaken after utilizing dental instruments, it was found that 43.2% (n=292) of participants advocated rinsing the tools with water and soap, followed by drying and placing them in the sterilization device. In contrast, 18.9% (n=128) of respondents preferred washing the instrument with water before placing it in the sterilization device. Additionally, 14.3% (n=97) of participants suggested rinsing the instrument with water, drying it, and placing it in the sterilizer. Conversely, 12.7% (n=86) of individuals proposed immediate instrument placement in the sterilization device after use. Lastly, 10.8% (n=73) of respondents indicated that the instrument should be rinsed with water and soap and placed in the sterilization device without drying, as depicted in Table 2.

The steps taken after using dental instruments.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Wash the tools with water, then place them in a sterilizer	128	18.9	18.9	18.9
	Rinse the tools with water and soap, then place them in a sterilizer	73	10.8	10.8	29.7
	Rinse the tools with water, dry them, and then place them in a steriliser	97	14.3	14.3	44.1
	Place the tools directly into the sterilization device after finishing the clinical work.	86	12.7	12.7	56.8
	Rinse the tools with water and soap, dry them, and then place them in the sterilization device	292	43.2	43.2	100.0
	Total	676	100.0	100.0	

Table 2. *Distributions of answers regarding the steps taken after using dental instrument*

About the management of the dental chair following treatment, a significant proportion of respondents (26.8%, n=181) indicated that they applied alcohol to the dental chair before vacating it. Additionally, 21.3% (n=144) reported using a surface disinfectant on the dental chair after treatment. Conversely, 21.7% (n=147) of participants left the dental chair without implementing specific measures. A smaller percentage of respondents (15.8%, n=107) preferred cleaning the dental chair with a damp cloth, while the remaining 14.3% (n=97) chose to utilize a Dettol solution for wiping the dental chair. These findings are visually represented in Table 3.

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

The procedure for handling the dental chair after completing the treatment.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Wipe the chair with a damp cloth only	107	15.8	15.8	15.8
	Spray the dental chair with alcohol, and then leave it	181	26.8	26.8	42.6
	Spraying the dental chair with Dettol solution, and then leaving it	97	14.3	14.3	57.0
	Spray the dental chair with other surface disinfectants, and then leave it	144	21.3	21.3	78.3
	Leaving the workplace without taking any action.	147	21.7	21.7	100.0
	Total	676	100.0	100.0	

Table 3. *Distributions of answers regarding the handling of dental chair*

In the responses about managing a fallen instrument during dental procedures, a significant proportion of the study population, precisely 28.1% (n=190), indicated their preference for washing the instrument with water or disinfectant and placing it on the dental chair tray for reuse. Another notable portion of the study cohort, comprising 18.2% (n=123), suggested leaving the instrument on the ground until the completion of the treatment without making any contact with the fallen instrument during the procedure. Additionally, 17.5% (n=118) of the participants expressed their decision to promptly grip the instrument and dispose of it in the washing basin. In the study population, 103 individuals, representing 15.2% of the sample, opted to hold the instrument, spray it with alcohol, and place it back on the dental chair tray for reuse. Additionally, 88 participants, accounting for 13% of the sample, reported quickly picking up the instrument and placing it back for reuse. Conversely, 41 individuals, constituting 6.1% of the sample, chose to spray the instrument with alcohol and place it back on the tray without intending to use it again during treatment. Furthermore, only 13 participants, representing 1.9% of the sample, elected to hold the instrument, wash it with water and surface disinfectant, and place it back on the tray without intending to use it again during treatment, as depicted in Table 4.

Response scenario in case one of the tools falls on the ground during work.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Quickly pick up the tool and place it directly back on the tray for reuse.	88	13.0	13.0	13.0
	Leave the tool on the ground until the treatment is completely finished.	123	18.2	18.2	31.2
	Grab the tool and throw it directly into the sterilization basin	118	17.5	17.5	48.7
	Hold the tool, spray it with alcohol, and then place it back on the tray for reuse.	103	15.2	15.2	63.9
	Hold the tool, wash it with water	190	28.1	28.1	92.0

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Academia Open
Vol 9 No 2 (2024): December
DOI: 10.21070/acopen.9.2024.10456 . Article type: (Medicine)

	or a surface disinfectant, and then place it on the tray for reuse.				
	Hold the tool, wash it with water or a surface disinfectant, then place it on the tray and do not use it.	13	1.9	1.9	93.9
	Hold the tool, spray it with alcohol, then place it back on the tray and do not use it	41	6.1	6.1	100.0
	Total	676	100.0	100.0	

Table 4. *Distributions of answers regarding the management of fallen instrument during treatment*

Regarding the appropriate course of action for managing the dental unit spittoon following dental treatment, a significant proportion of the participants, namely 38.2% (n=258), preferred employing a specialized brush only to clean the spittoon with alcohol. In contrast, a subset of the research population comprising 19.4% (n=131) preferred cleaning the spittoon with soap and water, utilizing a specialized brush. Conversely, 12% (n=81) of participants advocated for just employing alcohol as a cleaning agent without the use of any other tools or solutions. Fifty-four individuals, accounting for 8% of the sample, reported that the spittoon is only cleaned using water. Only a tiny proportion of participants, specifically 4.9% (n=33), preferred using standard surface disinfectant and a specialized brush to clean the spittoon. Thirty-one survey participants, or 4.6% of the sample, reported that the spittoon is sanitized using other types of surface disinfectant, as indicated in Table 5.

After treatment is finished how to deal with the spittoon					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never be cleaned at all after completing the treatment procedures	88	13.0	13.0	13.0
	It is only cleaned with water.	54	8.0	8.0	21.0
	Cleaned with alcohol only.	81	12.0	12.0	33.0
	Cleaned only with soap and water using a special brush	131	19.4	19.4	52.4
	Cleaned with alcohol only using a special brush.	258	38.2	38.2	90.5
	Clean only using regular surface disinfectant with a special brush.	33	4.9	4.9	95.4
	Clean with other types of disinfectants.	31	4.6	4.6	100.0
	Total	676	100.0	100.0	

Table 5. *Distributions of answers regarding the management of the dental unit spittoon*

Is protective eyewear used during the treatment?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Protective	48	7.1	7.1	7.1

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

	eyewear is not used during treatments.				
	It is always used.	69	10.2	10.2	17.3
	It is used, but not always.	242	35.8	35.8	53.1
	It is used only at the beginning of the treatment and then removed.	87	12.9	12.9	66.0
	It is only used during specific treatments.	117	17.3	17.3	83.3
	It is not used because they wear medical glasses, which is sufficient.	113	16.7	16.7	100.0
	Total	676	100.0	100.0	

Table 6. *Distributions of answers regarding the protective eyewear.*

Regarding the use of protective eyewear during medical procedures, 242 participants, accounting for 35.8% of the research cohort, reported that the operators utilize protective eyewear throughout treatment but only sometimes. Additionally, 117 individuals, representing 17.3% of the cohort, claimed that the protective eyewear is exclusively employed during special treatment. In contrast, a subset of the study population comprising 16.7% (n=113) said that they do not utilize protective eyewear due to the availability of medical eyeglasses, which they perceive as a suitable alternative. According to the study's findings, 12.9% (n=87) of the participants in the cohort reported that the protective eyewear was worn just during the start of the treatment and then removed by the operator. In the study group, a mere 10.2% (n=69) of participants consistently reported the utilization of protective eyewear. Conversely, a smaller proportion of participants, namely 7.1% (n=48), acknowledged that operators do not employ protective eyewear during treatment, as demonstrated in Table 6.

In the section of the questionnaire about participants' understanding of the sterilization process, most respondents (61.1%, n=413) indicated that they knew about this process. Conversely, a smaller proportion (38.9%, n=263) reported a lack of knowledge regarding sterilization, as depicted in Table 7. During the survey, participants were questioned about the medical gown's significance. Out of the total sample size of 676 participants, 57.8% (n=391) acknowledged the importance of the medical gown. Conversely, 24.9% (n=168) believed that the medical gown has no impact on infection prevention and is unnecessary during dental procedures. Additionally, 17.3% (n=117) of the study cohort demonstrated a need for more knowledge regarding the medical gown, as depicted in Table 8.

Do you have knowledge of how the sterilization substance works?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	413	61.1	61.1	61.1
	No	263	38.9	38.9	100.0
	Total	676	100.0	100.0	

Table 7. *Knowledge of sterilization process*

Is wearing medical gowns in the dental clinic important and contributes to infection control?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't know what the medical gown is	117	17.3	17.3	17.3
	It has no benefit	168	24.9	24.9	42.2
	Of course, very important	391	57.8	57.8	100.0
	Total	676	100.0	100.0	

Table 8. *Perception of medical gown*

Discussion

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

The COVID-19 pandemic has significantly raised the danger of infection. Healthcare workers are the group most at risk for infectious infections in the workplace in the medical area (7). Blood and saliva include a variety of germs that dentists are frequently exposed to. Consequently, compared to the general population, they have a higher incidence of some diseases (8). Dental undergraduate students occasionally disregard established infection control methods, even though they are standardized. More recently, an investigation was carried out by (9) to evaluate Mumbai dentistry undergraduate students' knowledge, attitudes, and practices surrounding infection prevention. Only 40% of final-year students, 40% of interns, and 42% of third-year students were specifically knowledgeable about infection control procedures. A correct attitude towards infection prevention was demonstrated by 24% of interns, 27% of final-year students, and 25% of third-year students. Finally, 41% of interns, 44% of final-year students, and 39% of third-year students were taught correct infection control practices.

Dentistry students typically put the infection control techniques they learned in dentistry school into practice. Our study looked into senior dentistry students at the Faculty of Dentistry's adherence to and use of a few fundamental infection control practices. During their third year as undergraduates, current dental school students hear lectures on infection management. Fourth- and fifth-year students are taught practice guidelines during their clinical training. Additionally, the university has created a standard infection control protocol, and clinical staff members monitor student adherence to the suggested protocol. The findings indicated that students most frequently store their devices in sterile pouches provided to all dental students at the clinics. The students are dedicated to following the established procedure of utilizing the faculty-provided sterilizers, such as the autoclave.

Equipment must be cleaned thoroughly to guarantee microbial inactivation because retaining organic or inorganic material could jeopardize later sterilization or disinfection procedures(10).

According to our findings, most students (43.2%) use soap and water to ensure the instruments are sufficiently cleaned after treatment, dry them off and then put them in the designated autoclave at the clinic for sterilization. These results are seen as encouraging and demonstrate a solid dedication to the most fundamental aspects of infection control practices. More limited IC instructions should be stressed, as 18.9% of students stated they washed used instruments with water before putting them in the sterilizer.

According to some research, thorough cleaning, which includes using plastic wraps and disinfectants, can increase the efficiency of infection control on the dental chair unit's surface (11).

According to our study, in 26.8% of students, effective infection control is achieved by spraying a disinfectant on the dental chair unit after removing the nylon wrap. Surprisingly, 21.7% of students removed the bandage and departed the treatment session without doing anything else. This is a concerning outcome that calls for further in-depth teaching of students on the significance of sprinkling disinfectant on all in-touch surfaces following treatment.

In cases where a dental item drops to the floor during a procedure, 18.2% of respondents said they leave it there until the procedure is over. If the fallen instrument, which is no longer sterilized, is placed back on the tray, this can prevent the sterilized instruments from becoming contaminated. On the other hand, the other students stated that they reacted by first grabbing the instrument and then doing something else (such as disinfecting, spraying with alcohol, etc.). This needs to be corrected and requires additional instruction and guidance at this level.

It is crucial to clean the spittoon after a dental procedure to prevent infection from blood and saliva residue from spreading to janitors or even students who may use the chair later. According to the study, 38.2% of students said they would instead use a special brush to wipe the spittoon only with alcohol. Only 8% of people clean their spittoons with water, which is insufficient to provide a satisfactory level of sterilization. The remaining students reported using other disinfection techniques, and, unexpectedly, roughly 12% of them recommended using alcohol as the only cleaning agent and avoiding using any other instruments or supplies. These results show that faculty students must adhere to a single, established cleaning routine.

Contamination of the eye with human fluids such as blood and saliva usually poses several bacterial and viral dangers to the dental team and students. Thus, wearing protective spectacles is crucial during clinical practice, particularly during treatments that expose dentists to infectious droplets or aerosols. In our study, 35.8% of the research cohort reported that the operators utilize protective eyewear throughout treatment. Conversely, a smaller % of participants, namely 7.1%, acknowledged that operators do not employ protective eyewear during treatment.

Autoclave sterilization is the chosen approach because of the safety, rapidity, and fatal action of pressurized steam on all bacteria (12). The sterilizer's functioning mechanism should be widespread among dentistry students, as it is most often taught in their academic courses (13). However, this study found that approximately 38.9% of pupils needed to be made aware of the sterilizer's functioning mechanism. This could be because some students deem it irrelevant because they do not directly use the sterilizer and instead present the instruments to the staff in charge of such responsibilities.

Wearing disposable gowns, scrubs, or other personal protective equipment is a barrier to preventing the spread of pathogens between dental healthcare providers and their patients (14). Studies have demonstrated that pathogen-containing aerosol and spatter can contaminate clinical wear, primarily the chest and forearms, and stay there for

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

several days (15). Most dental students in our research believed wearing a disposable gown during treatment was crucial. This significance is heightened during procedures (such as maxillofacial surgery and teeth extractions) that generate more significant blood aerosol volumes and increase spatter exposure.

Despite the considerable sample size and high response rate of the current survey, numerous potential limitations should be considered. One disadvantage is that the replies were subjective (i.e., based on students' self-report) rather than supplied under supervision in a clinical setting. Therefore, the results may only partially reflect students' knowledge and professional practice. Furthermore, this amount of questions cannot reveal the respondents' factual knowledge and practice. Nonetheless, the number of questions was minimal to improve the response rate, which worked well. Reinforcement or increased emphasis in the dentistry curriculum. Considering these limitations, this study provides valuable information about Iraqi dentistry students' knowledge, perspectives, and infection control practices. Such data should aid in identifying parts of the dentistry curriculum that require reinforcing or higher emphasis. In the section of the questionnaire about participants' understanding of the sterilization process, most respondents (61.1%, n=413) indicated that they knew about this process.

Conversely, a smaller proportion (38.9%, n=263) reported a lack of knowledge regarding sterilization, as depicted in Table 7. During the survey, participants were questioned about the medical gown's significance. Out of the total sample size of 676 participants, 57.8% (n=391) acknowledged the importance of the medical gown. Conversely, 24.9% (n=168) believed that the medical gown has no impact on infection prevention and is unnecessary during dental procedures. Additionally, 17.3% (n=117) of the study cohort demonstrated a need for more knowledge regarding the medical gown, as depicted in Table 8

Conclusion

Based on the findings of the current study analysis and investigation, the following conclusions can be drawn:

Dental students demonstrated a high degree of understanding and a favorable attitude towards infection management. Still, the learned material needs to be implemented in day-to-day activities. Improving adherence to infection control recommendations is still challenging, even with dental schools implementing all infection control methods. Refresh and upgrade students' knowledge of universal infection control methods through seminars or lectures every academic year and maintaining.

Precautions, proper Personal protective equipment (PPE), and infection control protocols should be followed appropriately when treating any patient, as dentists and dental students are more prone to infection than any other profession.

Even though surface infection and handpiece or bur sterilization are essential infection control techniques in dental settings, earlier research did not consider these activities. These practices have been addressed in the current investigation. Because those two practices are typically performed by dental nursing or dental assistants, dental students may need to pay more attention to them.

It is recommended to strengthen the supervision of dentistry students on excellent practices so that they adhere to using Personal protective equipment as part of standard clinical practice. Furthermore, vaccines, particularly Hepatitis B vaccination, should be made mandatory for students before admission to any dentistry school. It is recommended that continuous educational programs and training workshops on infection control measures and precautions be organized for dentistry students.

References

1. . A. E. Kristoffersen, E. T. van der Werf, T. Stub, F. Musial, B. Wider, M. C. Jong, et al., "Consultations with health care providers and use of self-management strategies for prevention and treatment of COVID-19 related symptoms: A population-based cross-sectional study in Norway, Sweden, and the Netherlands," Complement. Ther. Med., vol. 64, p. 102792, 2022.
2. . M. A. Casillas Santana, F. A. Dipp Velazquez, C. Sámano Valencia, A. Martinez Zumaran, N. V. Zavala Alonso, R. Martinez Rider, et al., "Saliva: What dental practitioners should know about the role of this biofluid in the transmission and diagnostic of SARS-CoV-2," Medicina, vol. 57, no. 4, p. 349, 2021.
3. . R. Pavithra, "Knowledge, Attitude and Practice Regarding Infection Control Measures Among Dental Students in a Dental Institute, Bangalore," M.S. thesis, Rajiv Gandhi Univ. of Health Sci., India, 2020.
4. . M. Madebo, B. Balta, and D. Daka, "Knowledge, attitude, and practice on prevention and control of pulmonary tuberculosis index cases family in Shebedino District, Sidama Region, Ethiopia," Heliyon, vol. 9, no. 10, 2023.
5. . M. Alrashdi, A. Hameed, and A. Aljabr, "COVID-19 and a call to adapt dental education," Front. Dent. Med., vol. 2, p. 664460, 2021.
6. . G. Alharbi, N. Shono, L. Alballaa, and A. Aloufi, "Knowledge, attitude, and compliance of infection control guidelines among dental faculty members and students in KSU," BMC Oral Health, vol. 19, pp. 1–8, 2019.

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

7. . J. A. Bielicki, X. Duval, N. Gobat, H. Goossens, M. Koopmans, E. Tacconelli, et al., "Monitoring approaches for health-care workers during the COVID-19 pandemic," Lancet Infect. Dis., vol. 20, no. 10, pp. e261–e267, 2020.
8. . S. A. Mosaddad, E. Tahmasebi, A. Yazdanian, M. B. Rezvani, A. Seifalian, M. Yazdanian, et al., "Oral microbial biofilms: An update," Eur. J. Clin. Microbiol. Infect. Dis., vol. 38, pp. 2005–2019, 2019.
9. . C. Girotra, S. Acharya, O. Shetty, S. Savla, M. Punjani, and T. Shah, "Assessment of knowledge, attitude, and practice towards infection control among dental undergraduate students: A cross-sectional survey," J. Indian Assoc. Public Health Dent., vol. 19, no. 1, pp. 65–70, 2021.
10. . R. E. Harrington, T. Guda, B. Lambert, and J. Martin, "Sterilization and disinfection of biomaterials for medical devices," in Biomaterials Science, 3rd ed., Amsterdam, Netherlands: Elsevier, 2020, pp. 1431–1446.
11. . A. S. Alshammari, O. F. Alshammari, M. Aldhafiri, S. A. Turkistani, W. N. Asiri, and G. K. Mittal, "Infection control in dentistry: An evaluation," Saudi J. Oral Dent. Res., vol. 8, no. 9, pp. 287–298, 2023.
12. . D. R. Ibraheem, N. N. Hussein, and G. M. Sulaiman, "Antibacterial activity of silver nanoparticles against pathogenic bacterial isolates from diabetic foot patients," Iraqi J. Sci., pp. 2223–2239, 2023.
13. . A. M. AlAhdal, "Knowledge of the Dental Healthcare Workers Regarding the Maintenance of Sterilization Integrity of Autoclaved Dental Instruments," M.S. thesis, Alfaisal Univ., Saudi Arabia, 2022.
14. . M. E. Bizzoca, G. Campisi, and L. Lo Muzio, "COVID-19 pandemic: What changes for dentists and oral medicine experts? A narrative review and novel approaches to infection containment," Int. J. Environ. Res. Public Health, vol. 17, no. 11, p. 3793, 2020.
15. . R. T. Weber, L. T. Phan, C. Fritzen-Pedicini, and R. M. Jones, "Environmental and personal protective equipment contamination during simulated healthcare activities," Ann. Work Expo. Health, vol. 63, no. 7, pp. 784–796, 2019.

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo