

Knowledge, Attitudes and Practice of Infection Control among Students and Interns of College of Dentistry, Aljouf University

Meshal Muflih H Alruwaili

Intern, College of Dentistry, AlJouf University, Kingdom of Saudi Arabia.

ABSTRACT

Objective: To assess the level of knowledge, attitudes and practice regarding infection control measures among dental students and interns.

Material and Methods: Ninety five dental students and interns of the dental college were participated in this study. A self-administered questionnaire comprising of fifteen questions regarding knowledge, attitudes, and practice was completed by all the participants. Statistical analysis was carried out using ANOVA and a p value of <0.05 was considered significant.

Results: It was observed that 96.77% of participants were cleaning their hands before and after examining the patient, 60.21% of the participants preferred to administer mouth rinse before commencement of treatment procedure and 91.39% were considered isolation is important in infection control. Most of the participants were aware that dental impression needs disinfection (60.21%) and there is a need to sterilize the bur (63.44%). Majority of the participants (89.24%) knew that the autoclave was used to sterilize the instruments and were aware about the exact time (88.17%) and the temperature of autoclave (96.4%). Most (87.09%) of the participants were disposing the gloves after the use. No significant differences

between the groups were noted for means of knowledge, attitude and practice scores.

Conclusion: The level of knowledge attitude and practice of infection control measures was acceptable among dental students and interns.

Keywords: Dental Students, Knowledge, Attitude, Practice, Infection Control, Saudi Arabia.

*Correspondence to:

Dr. Meshal Muflih H Alruwaili,
Intern,
College of Dentistry,
AlJouf University,
Kingdom of Saudi Arabia.

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INTRODUCTION

Various infectious diseases can be easily transmitted in a dental clinic setup and counteractive action of cross infection in the dental office is subsequently a significant part of dental practice.¹ Dental practitioners are at increased risk of exposure to cross-contamination with blood-transmitted diseases like, hepatitis B and C infections and in addition with different microbes that colonize the oral cavity and the upper respiratory tract.²

Diseases might be transmitted in the dental operatory through a few courses, incorporating direct contact with blood, oral liquids, or different discharges; circuitous contact with tainted instruments, operatory hardware, or ecological surfaces; or contact with airborne contaminants exhibit in either bead splatter or aerosol.³ Contamination by means of any of these courses requires that every one of the three of the accompanying conditions be available (generally alluded as the chain of disease): a susceptible host, a pathogen with adequate infectivity and numbers to bring about disease, and an entrance through which the pathogen may gain entry into the host. Successful infection control systems are planned to break at least one of these connections in the chain, in this manner counteracting disease.⁴

Dental Institutes are incharge of giving suitable contamination control measures, appropriate preparing of dental students to secure patients, and for the foundation of more secure work conditions.⁵ The Center for Disease Control and Prevention redesigned its rules on contamination control in dental settings. These rules incorporate standard safeguards which intend to guarantee a sheltered workplace and keep the potential transmission of work related and nosocomial diseases among dental practitioners and their patients. Mindfulness and consistence with these suggestions are significant for the avoidance of work related and nosocomial diseases in dental practice.⁶

Fundamental to the avoidance of infectious disease is the stringent coherency with definitive safety measures for all dental specialists. This incorporates, however not restricted to, protective clothing, eye wares, mask and gloves.⁷

Hands are thought to be a significant source for transmission of a disease and conceivably contaminated blood might be held underneath the finger-nails. It is hard to expel polluted material from the hands, especially from the subungual and nail overlay

territories, unless there is careful mechanical purging. So cleaning the hands and wearing of gloves by dental faculty has been instructed as a fundamental component regarding cross-disease control in dental surgery.⁸

In spite of the impressive accentuation that has been put on institutionalized disease control strategies, it gives the idea that couple of dental practitioners have clung to these methods in their practice. Indeed, even in dental institutes, the dental students have not generally legitimately clung to these strategies.⁹ Dental education can assume an essential part in the preparation of dental specialists, guiding them to embrace sufficient learning and demeanors identified with disease control measures.

With this background, the current study was carried out to assess the knowledge, attitudes and practice regarding infection control measures among dental students and interns at College of Dentistry, AlJouf University, Saudi Arabia.

MATERIAL AND METHODS

The present cross-sectional questionnaire study was conducted among undergraduate dental students (third year, final year) and interns of College of Dentistry, AlJouf University. Informed consent

from the participants was obtained and ethical clearance was granted for this study. The study sample was divided into four groups comprising of 95 participants; 23 third year students, 24 fourth year students, 31 fifth year dental students and 17 interns.

A self-administrated questionnaire was adapted from the previous similar study¹⁰ and it was modified and pretested on a random sample of dental. The study population voluntarily completed a questionnaire which comprised of fifteen questions. The questions were designed to the assess knowledge, attitude and infection control practices of the participants.

Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS) software for Windows version 20.0. Chi-square test was used to compare categorical variables. ANOVA was used to compare mean of knowledge, attitudes, and practice scores. A p value of <0.05 was considered.

RESULTS

In the present study, 93 out of 95 participants completed the questionnaire. Among 93 individuals, 22.58% were from third year, 27.95% were from fourth year, 33.33% were from fifth year and 16.12% were interns. (Table 1)

Table 1: Distribution of students according to the grade (Year) of study

Groups	N	%
Third year students	21	22.58%
Fourth year students	26	27.95%
Fifth year students	31	33.33%
Interns	15	16.12%
Total	93	100%
Total	93	100

About 96.77% of participants were cleaning their hands before and after examining the patient, among which 48.38% were using disinfectant solution and 47.31% were using plain soap to clean their hands. The majority (60.21%) of the participants preferred mouth rinse before commencement of treatment procedure and 91.39% were considered isolation is important in infection control. Most of the participants were aware that dental impression needs disinfection (60.21%) and there is a need to sterilize the bur (63.44%). Majority of the participants (89.24%) knew that the autoclave was the major source of sterilization and were aware about the exact time (88.17%) and the temperature of autoclave (96.4%). Most (87.09%) of the participants were disposing the gloves after the use and 97.84% percent confirmed that ineffective sterilization during clinical practice can transmit infection from one patient to another. (Table 2)

Knowledge, attitudes, and practice scores were assessed individually. Each appropriate answer added a score of 1. No significant differences between the groups were noted for means of knowledge, attitude and practice scores. (Table 3)

DISCUSSION

The level of knowledge about and compliance with infection control measures was acceptable among the dental students and interns, this observation was in accordance with previous study conducted in Saudi Arabia⁹ but this was in contrast with the results

of studies carried out in United Kingdom⁷, India,¹⁰ Iran,¹¹ Brazil,¹² and Yemen.¹³

In this study the response rate was 97.89% which was very high compared to other studies.^{9,10} In the present study 60.21% of the participants were aware that dental impression needs disinfection and 63.44% agreed that the dental burs needs to be sterilized, this finding was similar with that of Abreu et al.¹² Majority of the participants knew that the autoclave was used as a major source to sterilize the instruments and were aware about the exact time and the temperature of autoclave, this observation was comparable with those of other studies.^{10,12}

In the current study, majority (96.77%) of the participants were cleaning their hands before and after patient examination whereas Singh et al., noted that 95.5% were washing their hands before examining the patient. Among which 48.38% were using disinfectant solution and 47.31% were using plain soap to clean their hands, but in the study of Singh et al., 56.7% and 39.2% of students washed their hands using plain soap and antiseptic solution.¹⁰ Al-Maweri et al., noted that 70% of the individuals in their study reported washing their hands, which was low compared to this study.⁹

Use of face mask, gloves, eyewear, and protective clothing as standard infection control measures was practiced by most of the students (58.06%), this finding was high compared to the results of other studies.¹⁰

Table 2: Responses of participants regarding their knowledge, attitudes and practice about infection control measures

		Frequency	Percentage
▪ Do you wash your clean before and after examining the patient?	Yes	90	96.77%
	No	03	3.22%
▪ With what do you clean your hands?	Plain soap	44	47.31%
	Detergent	04	4.30%
	Disinfectant solution	45	48.38%
▪ Do you prefer the use of oral mouth rinse before starting any treatment?	Yes	56	60.21%
	No	37	39.78%
▪ Isolation is one of the important modes of infection control?	Yes	85	91.39%
	No	08	8.6%
▪ Dental impression needs disinfection	Yes	56	60.21%
	No	37	39.78%
▪ Which of the following do you use to sterilize instruments in dental clinic?	Autoclave	83	89.24%
	Boiling	5	5.37%
	Washing	5	5.37%
▪ What is the minimum time required for sterilization in autoclave?	5 min	4	4.30%
	10 min	5	5.37%
	15 min	82	88.17%
▪ What is the temperature for sterilization in autoclave?	100° C	3	1.2%
	120° C	236	96.4%
	150° C	6	2.4%
▪ Which of the following has the highest rate of transmission via saliva?	Hepatitis B	34	36.55%
	AIDS	15	16.12%
	Tuberculosis	36	38.70%
	Not aware	8	8.60%
▪ What immediate step should be taken in case of direct blood contact with an HIV patient?	Anti-HIV immunoglobulins	42	45.16%
	Anti-HIV drugs	28	30.10%
	Serological tests to be carried out	16	17.20%
	Not aware	07	7.52%
▪ Do dental burs need to be sterilized?	Yes	59	63.44%
	No	34	36.55%
▪ What protective measures do you advocate to protect yourself from an injury in the dental office?	Face mask and gloves	30	32.25%
	Eyewear	7	7.52%
	Protective clothing	2	2.15%
	All the above	54	58.06%
▪ After use of gloves for a patient, what do you do with them?	Dispose them	81	87.09%
	Reuse them after washing	4	4.30%
	Reuse them post sterilization	8	8.60%
▪ Ineffective sterilization can transmit infection from one patient to another?	Yes	91	97.84%
	No	1	1.07%
	Not aware	1	1.07%
▪ Disinfection of dental chair and the clinic as a whole office is required?	Yes	80	86.02%
	No	8	8.60%
	Don't know	5	5.37%

Table 3: Mean (SD) of knowledge, attitudes, and practice scores regarding infection control

Groups	Third year students	Fourth year students	Fifth year students	Interns	P
Knowledge Mean ± SD	4.11 ±0.12	4.21 ±1.86	4.28±0.85	4.32±0.32	(p >0.05)*
Attitude Mean ± SD	3.89 ±0.53	3.97±0.62	4.08 ±0.72	4.13±0.61	(p >0.05)*
Practice Mean ± SD	4.01 ±0.13	4.12 ±0.21	4.16 ±0.16	4.22±0.52	(p >0.05)*

*Non-Significant

The majority the participants believed in the importance of isolation in infection control and agreed that disinfection of the dental chair dental office as a whole is necessary apart from instrument sterilization and that infection control steps to be mandatory in dental practice.

The responses from this study indicated that dental students and interns had positive attitudes towards infection control measures. This observation was in accordance with other similar studies.^{10,14} In the present study, no significant differences between the third year, fourth year, fifth year and interns were noted in terms of knowledge, attitude and practice. Whereas Singh et al., noted a significant differences between the third year, fourth year, and interns for knowledge and practice scores, they mentioned that students may forgetting material over time and there is a need of rigorous infection control training prior to graduation.¹⁰

Similar to the previous studies, the major limitation of the present study was the mode for evaluating the precautionary measures. The participants practice could not be supervised and therefore the results were only based on their self-assessment. Accordingly, the responses might have not precisely emulated the genuine knowledge and attitude in practice and the disclosed level of practice may have been curtailed than the authentic level.

CONCLUSION

The level of knowledge and practice of infection control measures was acceptable among dental students and the attitude towards infectious control measures was positive.

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