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Research Article

KNOWLEDGE, ATTITUDE AND PRACTICE OF INFECTION CONTROL AMONG THE DENTAL STUDENTS

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ABSTRACT

Aim: To assess the attitude, knowledge and practice of infection control among the dental students

Objective: A self administered questionnaire consisting of 17 questions will be administered to 200 dental students. The questionnaire will also be made available online for more easy access. The data will be collected and imported to spss online software and the results will be obtained.

Background: Dentists are at high risk of exposure to cross-infection with blood-borne pathogens, such as hepatitis B virus and other viruses and bacteria that colonize the oral cavity and the upper respiratory tract. This risk is enhanced by accidental injuries caused by dental instruments during patient treatment.

Reason: Infections can be prevented using safety precautions and implementing infection control guidelines. Many dental patients may appear clinically healthy according to physical examination and medical history. Hence, risk management strategies or standard precautions should not be applied based on the patient's appearance. So knowledge and practice of the infection control is very important for any dental practitioner.

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INTRODUCTION

Transmission of infectious agents between the patient and doctor within the clinical environment is defined as cross infection¹. Certain basic routines must be adopted by the dental professionals to prevent cross infections. Dental health professionals are at high exposure to various micro organisms such as hepatitis B, hepatitis C, staphylococci, HIV, tuberculosis, mumps and influenza. These bacteria and viruses colonize the oral cavity and upper respiratory tract². Transmission of infection can happen through several methods such as direct or indirect³. A susceptible host, pathogen and a route through which it may enter are needed for infection to spread. Effective infective control strategies should break one or more of these links in the chain to prevent infection from occurring. A study conducted in late 1970's found that dentists are three times more prone to hepatitis B than the general public⁴. An essential element for cross infection control is wearing of gloves by the dental health personnels⁵. Major source of infection is considered to be hands⁶. The infected blood may retain into the nails for up to 5 days⁷. And it is also hard to remove the contaminated blood from hands. Dental colleges are responsible for providing knowledge about the cross infection and the control measures to be taken

to protect the patients⁸. The updated guidelines on infection control techniques were given by Centre for Disease Control and Prevention of the United States of America in 2003⁹. Despite of such emphasis placed on the infection control procedures only a few dentists adhere to these techniques in their practice¹⁰. Several studies have shown that even dental students do not practice these procedures properly^{11,12}.

MATERIALS AND METHODS

A questionnaire was circulated among various dental students of different dental colleges in Chennai. The study population of 200 students completed the questionnaire which consisted of 17 questions. The questionnaire was prepared in such a way that will obtain the knowledge, attitude and practice scores among the students. The study population comprised of third, fourth and final years. The questionnaire was given to the students in the classroom and asked to fill within 15 minutes. The interns were given the same questionnaire in various departments. The questionnaire consisted of questions which assessed the knowledge, questions to assess attitude and questions to judge the infection control practices among the respondents.

Chi- square test was used to compare the categorical variables. Analysis of variance (ANOVA) was used to compare the mean

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of knowledge, attitude and practice scores. A p value of less than 0.005 was considered to be significant. The results were performed using spss online software version 20.

There were 7 knowledge based, 5 attitude based and 5 practice based questions in the questionnaire framed. Each correct response added a score of 1. Mean knowledge, attitude and practice scores were 2.6(0.8), 3.1(0.7), 4.0(0.8).

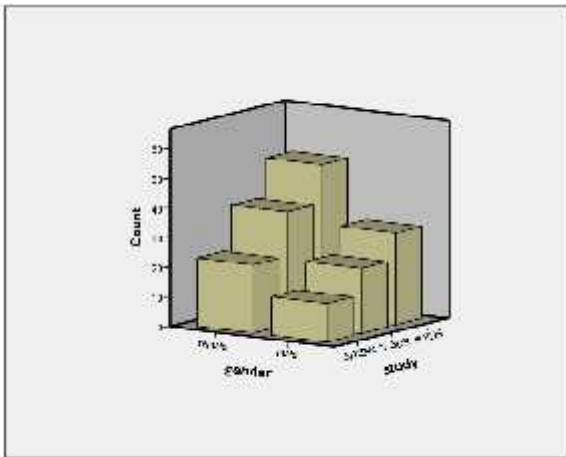


Fig 1 Gender & study bar graph

Table 1 Gender * study Crosstabulation

		Count			
		study			Total
		III BDS	IV BDS	INTERN	
gender	female	51	38	23	112
	male	31	22	13	66
Total		82	60	36	178

RESULTS

Out of 200 students, 178 voluntarily participated in the survey. Out of which 112 were females and 66 males. Not even 50% of the undergraduates used antiseptic solution to wash their hands before and after patient examination. All most all the students considered isolation to be an important infection control procedure. Many of them even that knowledge that ineffective sterilization can transmit infection from one patient to another. The questions were divided into knowledge, attitude and practice based and scores were calculated separately.

Table 2 Mean of knowledge, attitude and practice scores regarding infection control

S.NO	Year of study	Knowledge Mean(S,D)	Attitude Mean(S,D)	Practice Mean(S,D)
1.	III BDS	2.7 (0.8)	3.0 (0.7)	3.8 (0.8)
2.	IV BDS	2.5 (0.7)	3.2 (0.7)	4.2 (0.8)
3.	INTERNS	2.7 (0.7)	3.0 (0.6)	4.0 (0.7)
	TOTAL	2.6 (0.8)	3.1 (0.7)	4.0 (0.8)

Table 3 Study * knowledge Crosstabulation

		knowledge					Total
		1	2	3	4	5	
study	III BDS	4	29	37	10	2	82
	IV BDS	5	24	27	4	0	60
	INTERN	3	6	24	3	0	36
Total		12	59	88	17	2	178

Table 4 study * attitude Crosstabulation

		attitude				Total
		2	3	4	5	
study	III BDS	20	42	20	0	82
	IV BDS	9	27	22	2	60
	INTERN	8	20	8	0	36
Total		37	89	50	2	178

Table 5 study * practice Crosstabulation

		practice				Total
		2	3	4	5	
study	III BDS	3	26	33	20	82
	IV BDS	2	10	21	27	60
	INTERN	1	7	17	11	36
Total		6	43	71	58	178

Table 6 ANOVA test to check the significance of study

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.106	2	1.053	1.701	.185
Within Groups	108.299	175	.619		
Total	110.404	177			
Between Groups	3.193	2	1.597	3.098	.048
Within Groups	90.183	175	.515		
Total	93.376	177			
Between Groups	4.633	2	2.317	3.370	.037
Within Groups	120.316	175	.688		
Total	124.949	177			

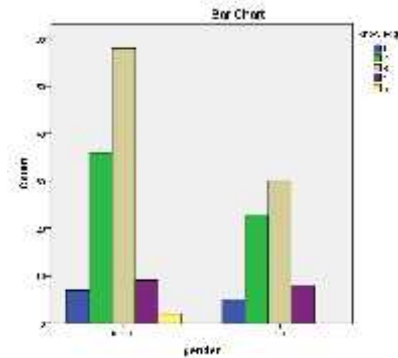


Fig 2 Gender vs knowledge

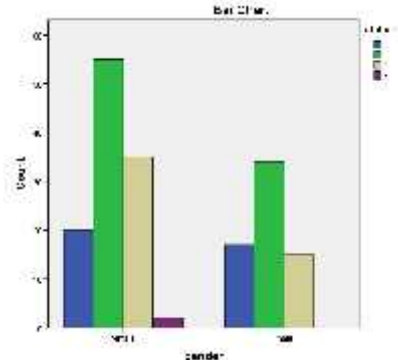


Fig 3 Gender vs attitude

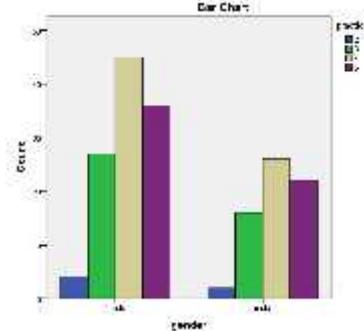


Fig 4 Gender vs practice

DISCUSSION

Unfortunately, most of the dental students were not vaccinated by Hepatitis- B vaccine. The Dental Council of India is made mandatory for all dental students to be vaccinated with Hepatitis-B vaccine, but it is not mandatory in schools. Even though the students were taught to use antiseptic solutions before and after patient examination they didn't do so. Only hand full of students used face mask, gloves, eye wear and protective clothing. The preference to face mask and gloves was given more than the eye wear and protective clothing in most of the dental schools. It is very rare to see students using eye shields and protective clothing. The knowledge about the infection control measures was poor among the students. Reasons for this could be inadequate training techniques, inappropriate supply of equipment. Similar results were found in studies by Henrique *et al*¹³, Askarian and Assadian¹⁴, Ogden *et al*¹⁵, Taiwo and Aderinokun¹⁶ regarding students in Brazil, UK, Iran and Nigeria.

Most of the students used autoclave to sterilize instruments in this study. A ten year study was conducted by Henrique *et al*¹³ regarding the infection control rules. The use of autoclave increased as the years passed by. In 1995 83.8% of them used autoclave and in 2005, 95.9% to sterilize the instruments. But no student can describe the correct pressure, temperature and time regarding the autoclave either in 1995 or in 2005. However in this study the students were more aware about the above details. The high percentage about the sterilization techniques resulted among good knowledge about the same. A study showed that 55% of the students preferred oral mouth rinse before and after commencement of any procedure¹⁷.

Mean knowledge, attitude and practice scores were 2.6(0.8), 3.1(0.7), 4.0(0.8) respectively. Cross tabulation was done between study-knowledge, study-attitude and study-practice and the results are tabulated. Bar graphs are given regarding the gender and knowledge, attitude and practice separately. Anova test was done to check the significance of knowledge, attitude and practice scores. It was found that attitude and practice scores were significant while knowledge scores were not significant.

CONCLUSION

This study indicates that there is lack of knowledge about the basics of infection control and the prevention transmission of communicable disease among the dental students. Therefore continuous educational programs, training workshops on infection control isolation should be given to students to enhance their clinical practice.

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