

Awareness Regarding Cross – Infection and Infection Control Among Patients Attending Dental Clinics in Rajahmundry City, East Godavari District – A Cross Sectional Study

¹Prasanth Tumarada, Post graduate student, Department of public health dentistry, Lenora institute of dental sciences, Rajahmundry, Andhra Pradesh

²Naveen Kumar B, Head of the department, Department of public health dentistry, Lenora institute of dental sciences, Rajahmundry, Andhra Pradesh

³Narayana Rao V, professor, Department of public health dentistry, Lenora institute of dental sciences, Rajahmundry, Andhra Pradesh

⁴Akhil P, Assistant professor, Department of public health dentistry, Lenora institute of dental sciences, Rajahmundry, Andhra Pradesh

⁵Anvesh G, Assistant professor, Department of public health dentistry, Lenora institute of dental sciences, Rajahmundry, Andhra Pradesh

⁶Krishna D, post graduate, Department of public health dentistry, Lenora institute of dental sciences, Rajahmundry, Andhra Pradesh

Corresponding Author: Prasanth Tumarada, Post graduate student, Department of public health dentistry, Lenora institute of dental sciences, Rajahmundry, Andhra Pradesh

Citation of this Article: Prasanth Tumarada, Naveen Kumar B, Narayana Rao V, Akhil P, Anvesh G, Krishna D, “Awareness Regarding Cross – Infection and Infection Control Among Patients Attending Dental Clinics in Rajahmundry City, East Godavari District – A Cross Sectional Study”, IJDSIR- June - 2021, Vol. – 4, Issue - 3, P. No. 500 – 505.

Copyright: © 2021, Prasanth Tumarada, et al. This is an open access journal and article distributed under the terms of the creative commons attribution noncommercial License. Which allows others to remix, tweak, and build upon the work non commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Infectious diseases represent an important public health problem in many countries. Cross-infection during clinical practice can occur with transmission of infectious agents between patients and health workers. The aim of the study was to determine the level of knowledge, attitude and practice (KAP) regarding cross infections and infection control in dentistry among patients attending dental clinics in Rajahmundry.

Material and Methods: A cross-sectional survey was conducted among 830 patients who attended various dental clinics in Rajahmundry. A standardized questionnaire was used to assess the attitude, self-reported practices towards infection control measures of patients. Data was analyzed using SPSS 23 version. Descriptive and inferential statistics were obtained. Chi-square test was applied to determine the associations between the

categorical variables. All p- values ≤ 0.05 were considered statistically significant.

Results: The majority of the participants had positive attitudes towards infection control measures. Regarding self-reported practice, 66.4% of participants agreed that they ask about the way of sterilizing instruments; 45.3% and 38.9% of participants responded that no such occasion arise to ask the dentist to wear a face mask and gloves.

Conclusion: A good attitude towards infection control in dentistry was prevailed among patients attending dental clinics. Health education programs can help in elimination of dental infection through increasing awareness of both consumers and providers about the required protection measures.

Keywords: Patient safety, Cross infection, Dental infection, Infection control

Introduction

Infectious diseases represent an important public health problem in many countries¹. Occupational exposure to blood and body fluids is a serious concern for health care workers (HCWs) and presents a major risk for the transmission of infections². In dentistry there is continuous exposure to various blood borne and upper respiratory tract pathogens or infectious agents through blood, saliva and various other body fluids^{3,4,5}. Infectious diseases are real hazards in the dental clinics both to the patients and the oral health care workers because of the nature of the dental treatments, which are usually carried out in an environment of saliva often mixed with blood and using sharp instruments that can cause subcutaneous injury and subsequent transmission of infectious agents.

There are basic minimum standards set for the prevention and control of infections in the dental work place. These include vaccination against HBV, use of protective barriers, sterilization of all invasive instruments and taking a thorough medical history for all patients⁶. Heightened

awareness among dental practitioners of cross-infection risks has meant that barrier procedures (gloves, masks, eye protection) and the use of autoclaves are now compulsory in the dental surgery. While much of the impetus for change has come from within the profession, it is probable that changing public expectations for cross-infection control have also played their part, by media coverage which has often appeared to sensationalize the issue rather than promote rational discourse⁷. Cross-infection during clinical practice can occur with transmission of infectious agents between patients and health workers. Most of the studies done about infection control in dentistry were conducted among dentists or dental students. Limited studies reported the knowledge on infection control among patients attending dental clinics. So, this study was planned with the aim to determine the level of knowledge, attitude and practice (KAP) regarding cross infections and infection control in dentistry among patients attending dental clinics in Rajahmundry.

Materials and Methods

Across-sectional study was conducted over a period of 4 months from October 2019 to February 2020 among registered dental clinics in Rajahmundry city. Prior ethical clearance was obtained from the Institutional Ethical Committee (IEC) of the college. List of private dental practitioners was obtained from the District Medical and Health Office (DMHO), East Godavari district. A pilot study was done to determine the feasibility of the survey. Informed written consent was obtained from the participants. The patients were interviewed at waiting area of the clinics.

Inclusion criteria: - Patients attending registered dental clinics and who returned the informed consents were included.

Exclusion criteria: - Dental clinics under renovation, Non co-operative, mentally challenged patients are excluded.

Pilot study was conducted. A pre tested, pre designed questionnaire was used. It consists of two sections: Demographic data and questions regarding knowledge, attitude and practice about cross infection. 830 patients responded positively by returning the filled questionnaire. Each patient took 5-8 min to complete the questionnaire. For each knowledge question, a score of “1” was given for the correct answer and “0” for the incorrect or unknown answers. A total knowledge score was calculated and it ranged from 0 to 12. It was then classified into three tertiles:

1. Poor score: two-thirds of the correct answers (<6/12 questions).
2. Fair score: 50% — two-thirds of the correct answers (6—8/12 questions)
3. Satisfactory score: >two-thirds of the correct answers (>8/12 questions)⁸.

Statistical analysis was carried out in SPSS version 23.0. Descriptive and inferential statistics were obtained. Chi-square test was applied to determine the associations between the categorical variables $P \leq 0.05$ was considered as statistically significant.

Result

Out of 830 participants 457 were males and 373 were females. Majority of the participants were above 30 years of age (44%), non-professional (74.4%), and less than university level of education (50.2%) Table- 1.

The study reveals that participants had positive attitudes towards infection control measures required during dental practice (Table-2). Most of the participants (99.2%) agreed that protection of both dentist and patients are necessary to control cross infections. Public opined that majority of dentists wore gloves, face mask and eye goggles (88.6%, 90%,65.7%) while treating patients and necessary for the protection of dentists against bad breath and splashes (98.5%). Most of the patients responded that

dentists replace the gloves while receiving phone calls (57.8%) and during patient-to-patient gap (81.7%).

Males (47.4%) obtained higher percentage of satisfactory knowledge score compared to females (18.9%). Participants with age > 30 years (23.8%) have satisfactory knowledge. Patients with a professional job (51.3%) had better level of knowledge compared to non-professional participants. Participants of university level of education (52.1%) had the highest level of knowledge compared to others and p value is highly significant. ($p= 0.001$).

Table-3. 66.4% of participants had concerns regarding the measures used by the dentists to reprocess dental instruments (Table-4). 45.3% and 39.9% of participants opinioned that no such occasion to ask the dentist to wear a face mask and gloves (supposing not wearing), respectively. Although (63.2%) of the people did not delay/avoided dental treatment because of risk of infection from dental equipment; 52% of participants reported that they obtained information about infection control from social media. Figure 1.

Discussion

In the present study, most participants had positive attitudes towards dentist using of barrier methods (gloves, face mask, and eye glasses) to prevent spread of infection during dental practice which is similar to the study done by Taha F et.al⁹. In the current study, the educational level of participants significantly associated with their level of knowledge about infection control and dental infections in dentistry. These results agree with the results of Barlean, et.al¹⁰, Ibrahim N K et.al⁸.

Most of the patients (99.6%) agreed that protection of both dentist and patients is necessary. It was found that 90%, 88.6% and 65.7% of the participants perceived dentists should wear face mask, gloves and eye goggles while doing treatments. This study shows better results

than the study done by Mousa AA et.al¹¹., similar with the results of Porter SR et.al¹²., Ibrahim NK et.al⁸.

Sterilization and disinfection of instruments are of utmost significance in dental clinics, for preventing the cross infection. In the present study, more than half of the participants knew about instrument sterilization. Majority of patients (66.4%) ask the dentist about the way they sterilize instruments. These results are in line with study done by Ibrahim N K et.al⁸, contrary findings with Baseer M A et.al¹³, and Azodo et.al¹⁴.

This study shows contrasting results when compared with Grace et.al¹⁵ reported that newspapers, magazines followed by television were commonest source of information. The cause of this discrepancy may be due to time differences between present and quoted study. Social media is considered now a days an effective and accessible method. These results are similar with Taha et.al² and contrast with previous studies done by Thomson et.al⁷ and Bassar et.al¹³; where the public delayed or avoided the dental treatments when there was a perceived cross infection risk. Limitation of the study are cross sectional study conducted out patients attending dental clinics, a longitudinal study with follow-up may be give better results. There is number of participants in different age groups, the results should not interpret solely based on percentages, but frequencies should also be considered as limitation. Patients attending dental clinics need to be equipped with better knowledge about cross infection in dentistry through educational programs which can include both providers and consumers. It can be done also through mass media, education programs in university and schools. These programs can help in elimination of dental infection through increasing awareness of both consumers and providers about the required protective measures are recommended.

Conclusion

This study shows patients have adequate knowledge and aware of basic barrier techniques about infection control. The patients with high level of education desire to be involved in evaluation of the recommended infection control measures considering that an effective communication with the dentist guaranties an increased quality level of the dental treatment. For effective implementation of infection control programs, it is crucial to increase public awareness in large population it can be achieved by prompt use of social media and other new digital innovations.

References

1. Moradi Khanghahi B, Jamali Z, Pournaghi Azar F, Naghavi Behzad M, Azami-Aghdash S. Knowledge, attitude, practice, and status of infection control among Iranian dentists and dental students: a systematic review. *J Dent Res Dent Clin Dent Prospects* 2013;7:55—60.
2. Tada A, Watanabe M, Senpuku H. Factors influencing compliance with infection control practice in Japanese dentists. *Int J Occup Environ Med* 2014;5(1):24—31.
3. Infection control recommendations for the dental office and the dental laboratory. *JAm Dent Assoc* 1992;Suppl:1-8.
4. Kohn WG, Collins AS, Cleveland JL, Harte JA, EklundKJ, Malvitz DM. Centers for Disease Control and Prevention (CDC). Guidelines for infection control in dental health- care settings--2003. *MMWR Recomm Rep* 2003;52(RR-17):1-61.
5. de Souza RA, Namen FM, Galan J Jr, Vieira C, SedanoHO. Infection control measures among senior dental students in Rio de Janeiro State, Brazil. *J Public Health Dent*2006;66(4):282-4.

6. Sofola OO, Uti OG, Onigbinde OO. Public perception of cross-infection control in dentistry in Nigeria. *Int Dent J* 2005;55:383-387.
7. Thomson WM, Stewart JF, Carter KD, Spencer AJ. Public perception of cross-infection control in dentistry. *Aust Dent J* 1997;42(5):291-296.
8. Ibrahim NK, et al. Cross-infection and infection control in dentistry: Knowledge, attitude and practice of patients attended dental clinics in King Abdulaziz University Hospital, Jeddah, Saudi Arabia. *J Infect Public Health* 2016;10(4):1-8.
9. Taha F, Joseph J, Janakiram C, Puttaiah R. Dental infection control practices and public perception: A cross-sectional study. *J Int Oral Health* 2015;7(12):20-26.
10. Barlean L, Saveanu I, Balcos C. Dental patients' attitudes towards infection control. *Rev Med Chir Soc Med Nat Iasi* 2014;118:524-527.
11. Mousa AA, Mahmoud NM, El-Din AMT. Knowledge and attitudes of dental patients towards cross-infection. *East Mediat Health J* 1997;3:263-273.
12. Porter SR, Peake G, Scully C, Samaranayake LP. Attitudes to cross-infection measures of UK and Hong Kong patients. *Br Dent J* 1993;175:254-257.
13. Baseer MA, Rahman G, Yassin MA. Infection control practices in dental school: a patient perspective from Saudi Arabia. *Dent Res J (Isfahan)* 2013;10:25—30.
14. Azodo CC, Umoh A, Ehizele Nigerian patients' perception of infection control measures in dentistry. *Int J Biomed Hlth Sci.* 2010;6:173–179.
15. Grace EG, Cohen LA, Ward MA. Patients' perceptions related to the use of infection control procedures. *Clin Prev Dent* 1991;13:30-33.

Legend Figure

Table 1: Socio demographic details of participants

Socio demographic details		No. of participants	Percentage
GENDER	Male	457	55
	Female	373	45
AGE (in years)	≤20	171	20.6
	20-30	295	35.5
	>30	364	43.8
OCCUPATION	Professional	212	25.5
	Non professional	618	74.5
LEVEL OF EDUCATION	≥University	286	34.4
	< University	417	50.2
	Student	127	15.3

Table 2: patient's knowledge use of basic barrier techniques of infection control by dentists.

Patients Opinion	Yes		No		Don't Know	
	No.	%	No.	%	No.	%
Does your dentist should always wear gloves while treating patients	736	88.6	38	4.6	56	6.7
Does your dentist should replace gloves after receiving phone calls	567	68.3	145	17.5	118	14.2
Does your dentist can treat more than one patient with same gloves	24	2.9	678	81.7	128	15.4
Does your dentist should always wear facemask when treating patients	747	90	74	8.9	9	1.1
Does your dentist should wear eye goggles when treating patients	545	65.7	255	30.7	30	3.6
Necessary for the protection of both dentist and patients	823	99.2	0	0	7	0.8
Necessary for the protection of dentists against bad breath and splashes	818	98.5	7	0.9	5	0.6
Unnecessary to wear face mask and goggles because it makes examination difficult / obscures dentists view	74	8.9	421	50.7	335	40.4
Unnecessary to wear face mask and goggles because patient cannot see operator's expression	0	0	794	95.7	36	4.3

Table 3 Levels of knowledge about cross infection of participants

Knowledge level	Variables	Poor		Fair		Satisfactory		X ²	P value
		No.	%	No.	%	No.	%		
GENDER	Male	149	32.5	92	20.1	216	47.4	73.88	0.001**
	Female	185	49.5	118	31.6	70	18.9		
AGE (in years)	≤20	74	43.2	65	37.9	32	18.9	17.53	0.001**
	20-30	84	28.6	157	53.3	54	18.1		
	>30	104	28.7	173	47.5	87	23.8		
OCCUPATION	Professional	35	16.6	68	32.1	109	51.3	84.05	0.001**
	Non professional	172	27.9	329	53.2	117	18.9		
LEVEL OF EDUCATION	≥ University	38	13.3	99	34.6	149	52.1	117.0	0.001**
	< University	136	32.5	206	49.6	75	17.9		
	Student	20	15.4	80	63.2	27	21.4		

Statistically highly significant** Test applied: Chi-Square test.

Table 4: Responses of the public towards dental infection control

RESPONSE	Yes		No, I don't mind		No, I am afraid		No, I am shy		No such occasion	
	No.	%	No.	%	No.	%	No.	%	No.	%
Did you ask the dentist to wear a face mask if not wearing it/ them	62	7.5	278	33.5	16	1.9	98	11.8	376	45.3
Did you ask the dentist to wear gloves if he isn't wearing it/them	284	13.3	178	21.4	14	1.6	23	2.8	331	39.9
Did you ask the dentist about the way they sterilize instruments	551	66.4	47	5.7	45	5.3	14	1.7	173	20.9
Have you ever delayed/ avoided your dental treatment because of risk of infection from dental equipment	187	22.5	95	11.5	23	2.8	0	0	525	63.2

Figure 1: Source of information to participants

