

Dentists' Perception and Practices Regarding Primary Prevention of Dental Caries

Kanwal Nazir Arbab,¹ Sami. S. Khan,¹ Aamir Hameed¹ and Ayaz. A. Khan²

¹Peshawar Dental College and Hospital, KPK

²Department of Dental, Shaikh Zayed Hospital, Lahore

ABSTRACT

Aims: The primary aim of this study was to determine dentist's knowledge and practices regarding caries prevention. The secondary aim was to compare preventive practices of dentists that have not studied community & preventive dentistry, to dentists that had it included in their curriculum. **Methodology:** A cross-sectional study of dental practitioners of Peshawar will be carried out, using a structured, self-administered, close ended questionnaire. Responses will be collected and statistical analysis will be performed using SPSS version. **Results:** The majority of respondents in the study were male (51.6%) and (48.3%) were female dentists. Only 37.5% of the dentists report providing dental sealants, whereas 62.5% did not provided dental sealant treatment to their patients. Only 38% of the dentists informed their patients about the different forms of fluoride available (dietary fluoride drops/tablets and fluoride varnish). And the dentists who informed about the different forms of fluoride only 28% among them performed pits and fissure sealing. The lowest level of understanding was regarding caries risk assessment (CRA) and availability of oral health awareness material for patients. **Conclusion:** Dentists' lack of understanding of dental caries prevention impacts not only their clinical decision-making but also what they tell their patients. The results of this study recommend that there is a need to enhance the level of awareness of dentist regarding the practice of preventive dentistry. In order to effectively reduce the burden of oral diseases and especially prevent early childhood caries.

INTRODUCTION

The modern dentistry approach is moving towards preventive dentistry, an attitude that has decreased the prevalence of caries within the past decade. For oral health promotion, preventive dentistry is among the priorities of WHO, and due to this reason dentists knowledge and attitude must be directed in the same path. There is no significant information available regarding the level of dentists' knowledge and practice on preventive dentistry¹

Oral hygiene associated behaviors of the patients can be influenced by their dentists². The modern dentistry is directed towards preventive approach rather than surgical approach³. The introduction of preventive dentistry has reduced the prevalence of dental caries in recent decades and it will constitute the most important part of dental

services in future⁴). The World Health Organization (WHO) has placed preventive dentistry among its priorities for oral health promotion⁶.

Basically, the causes of oral diseases are well established and the major priority for new research is on prevention policy and program effectiveness⁷. Clinical and public health research has shown that a number of individual, professional and community preventive measures are effective in preventing most oral diseases⁷. The use of fluorides and sealants has achieved a marked reduction in dental caries⁸. Unfortunately, these preventive regimes are not well understood by the public or even oral health providers⁹. Innovations in oral health science and knowledge have not yet benefited developing countries, the major challenges of the future will be to convert knowledge and experiences of disease prevention into action programs⁸. However, optimal

intervention in relation to oral disease is not universally available or affordable because of escalating costs and limited resources in developing countries⁸. Due to lack of emphasis on primary prevention of oral diseases, particularly developing countries and countries with economies and health systems in transition pose a considerable challenge of increase in burden of oral diseases⁸.

Dentists should conduct a risk assessment for dental caries for each patient. According to the American Academy of Pediatric Dentistry caries risk assessment is “the determination of the likelihood of the incidence of caries during a certain time period or the likelihood that there will be a change in the size or activity of lesions already present” (AAPD, 2011b)⁹. It is necessary to continuously re-evaluate caries risk because of the changeability of risk due to changes in habits, oral micro flora, or physical condition¹⁰.

According to the “National Oral health survey 2003” there is a marked increase in the burden of oral diseases in Pakistan¹¹. Over 90% of the oral diseases remain untreated in Pakistan, due to lack of oral health awareness among the people¹². The majority of the patients consult a dentist at an advance stage of decay which is usually beyond repair, and this delay in seeking treatment contributes to the increasing burden of oral diseases¹². The preventive services are less than 3% of services at the public dental clinics, which is an indication of absence of preventive practices and dental health promotional programs in the country¹². The oral health system in Pakistan is in a transitional development phase, and systematic data collection is needed to plan oral health care programs for the public¹². We have insufficient information regarding the practices and level of dentists’ knowledge on preventive dentistry¹³. The purpose of this study was to determine dentist’s knowledge and practices regarding caries prevention. The secondary aim was to compare preventive practices of dentists that have not studied community & preventive dentistry, to dentists that had it included in their curriculum.

MATERIALS AND METHODS

A cross-sectional study was carried out

among dentists of Peshawar, using a structured, self-administered, closed ended questionnaire. The study population included 150 registered dentists of Peshawar. The 150 dentists were selected from a list of general practitioners members of PMDC in Peshawar city. Participation in the study was voluntary. Each dentist was given a self-administered questionnaire by the authors or coordinators, which was completed by the participants themselves. The questionnaires were individually filled and collected immediately and returned to one of the investigators. The participants who did not answer three or more statements were excluded. In case of no answer for less than three questions the answer was considered negative. Some of the dentists were notified by mail, they were provided with a questionnaire form, a cover letter outlining instructions on how to complete the form, and an addressed return envelope for returning the completed questionnaire. Only 20 among the 50 dentist responded who were notified by mail. Non-respondents (n=30) were excluded from the study. Of the 150 dentists receiving the questionnaire, 120 dentists (80%) responded. The mean age of the participants was 32.5% years and 51.7 % of them were men.

Statistical Analyses:

Descriptive statistics were obtained and means, standard deviation, and frequency distribution were calculated. The data were analyzed using the Statistical SPSS version 16.

Table 1: Characteristics of the sample.

Gender	Number	Percentage
Male	62	51.6%
Female	58	48.3%
Total	120	100%

RESULTS

The gender wise distribution of the sample showed that 51.6% were male and 48.3% were female dentists (Table 1). Only 37.5% of the dentists report providing dental sealants, whereas 62.5% did not provided dental sealant treatment to

their patients. Males were more likely to provide sealants to patients and had more knowledge of fluoride than female practitioners. Dentist (67%) who had studied community and preventive dentistry were significantly more likely to understand the effectiveness of topical fluoride applications compared to the dentists (44%) who never had such a course (Table 2). Only 38% of the dentists informed their patients about the different forms of fluoride available (dietary fluoride drops/tablets and fluoride varnish). And the dentists who informed about the different forms of fluoride only 28% among them performed pits and fissure sealing.

Table 2: Knowledge of dental sealants and their effectiveness

Have you studied community and preventive dentistry as a subject in your second professional examination	Do you apply dental sealants to your patients?		Total
	Yes	No	
Yes	46(67%)	22(32.3%)	68
No	23(44%)	29(55.7%)	52
Total	69	51	120

Table 3: The mean scores of dentists regarding practice of preventive measures by gender

	Female (n=58)	Male (n=62)	Total (n=120)
Do you apply dental sealants to your patients?	0.38	0.37	0.38
Do you provide oral health awareness material to your patients?	0.26	0.31	0.28
Do you discuss the dental caries process and appropriate detection techniques with the patient?	0.47	0.39	0.43
Do you discuss the causality of dental caries with the patients?	0.74	0.61	0.67

Those dentists who graduated after the introduction of community and preventive dentistry subject were more likely to provide oral hygiene awareness education to their patients and conduct carious risk assessments. In current study 57.5% discussed the dental caries process and appropriate

detection techniques with the patients, among them only 12.5% of the dentists collected data regarding caries risk assessment. On the other hand dentists' knowledge of the effectiveness of community water fluoridation was the highest (about 89%). Furthermore, dentists who reported attending an education course on caries prevention were more likely to provide topical fluoride at appropriate frequency. The lowest level of understanding was regarding caries risk assessment (CRA) and availability of oral health awareness material for patients. Only 28% of the dentists provided oral health awareness material in the private clinics, whereas among these, 71% of the dentists with preventive dentistry education provided oral health awareness material (Table 4).

Table 4: Oral health awareness material.

Have you studied community and preventive dentistry as a subject in your second professional examination	Do you apply dental sealants to your patients?		Total
	Yes	No	
Yes	37(71.2%)	15(28.8%)	52
No	19(27.9%)	49(72.1%)	68
Total	34	86	120

DISCUSSION

To provide appropriate dental caries prevention for the public and to improve oral health literacy, dentists must have current evidence-based information about dental caries prevention. The findings of this study provide the current status of Peshawar dentists' understanding, practices and educational efforts regarding dental caries prevention. The result of this study shows that dentists had only moderate levels of knowledge about dental caries prevention. The practice of caries risk assessment (CRA) was inadequate. Male students were well informed about preventive dentistry than their female counterparts.

The current study showed that approximately 32.5% of the dentists provide dental sealants, which is quite low as compared to the evidence given by Go Matsuo 2013 (88%)⁹. The predominant reason that dentists are not providing dental sealants might

be due to low socioeconomic background of the patients and that the patients are usually unwilling to pay for them.

According to this study dentists were deficient in collecting data regarding caries risk assessment especially among dentists who had graduated before the introduction of community and preventive dentistry in the curricula. Therefore more evidence-based caries prevention education should be provided in dental school and via dental education workshops for current dentists¹⁴⁻¹⁵.

Dentists having community and preventive dentistry in their curriculum had sound knowledge about the action of fluoride and its application. This finding is logical, because continuing dental education (CDE) improves dental practitioners' knowledge and practice¹⁶.

CONCLUSION

The knowledge of early detection and dental caries prevention of dentists in Peshawar is moderate. Better utilization of caries-risk assessment and preventive strategies can produce enormous health benefits. For improving the oral health status and oral health literacy, dentists should provide appropriate caries prevention practices and education to their patients. Further studies are required so that the results can further be generalized.

REFERENCES

1. Nilchian F, Kazemi S, Abbasi M, Ghoreishian F, Kowkabi M. Evaluation of Isfahan's dental students' awareness about preventive dentistry. *J Dent Shiraz Univ Med Sci.* 2014;15(1)1-5
2. Eijkman MA, de With C. Answers from dentists, dental hygienists and dental assistants to questions asked by patients concerning preventive dental matters. *Community Dent Oral Epidemiol* 1980; 8: 339-346.
3. Calderon SH, Gilbert P, Zeff R.N, Gansky SA, Featherstone JDB, Weintraub JA, Gerbert B. Dental students' knowledge , attitudes and intended behaviors regarding caries risk assessment :Impact of year of education and patient age. *J Dent Edu* 2007; 71 (11).
4. Petersson GH, Bratthall D. The caries decline: a review of reviews. *Eur J Oral Sci* 1996; 104 (4 (Pt 2): 436-443.
5. Eklund SA. Changing treatment patterns. *J Am Dent Assoc* 1999; 130: 1707-1712.
6. Petersen PE, Estupinan-Day S, Ndiaye C. WHO's action for continuous improvement in oral health. *Bull World Health Organ* 2005; 83: 642.
7. Cohen L, Gift, H. Disease prevention and health promotion. *Socio-dental sciences in action.* Copenhagen Gen: Munksgaard.1995.
8. Petersen P E: Priorities for research for oral health in the 21st Century – the approach of the WHO Global Oral Health Program (Chief, Oral Health Program, World Health Organization, Department for Chronic Disease and Health Promotion, Geneva, Switzerland) Based on a paper prepared for the Global Forum for Health Research Meeting, Forum 8, Mexico City, 16–20 November, 2004
9. Matsuo G. What Maryland dentists know and do about preventing dental caries, (2013). University of Maryland.
10. Beauchamp J, Caufield P, Crall J, Donly K, Feigal R, Gooch B, Simonsen R. Evidence-Based Clinical Recommendations for the Use of Pit-and-Fissure Sealants: A Report of the American Dental Association Council on Scientific Affairs. *J Am Dental Assoc (JADA).* 2008; 139(3): 257-268.
11. Pakistan medical research council. Oral health in Pakistan: A situational analysis 2003.
12. Ali S, Ijaz S. Oral health; extent of awareness among patients visiting Islamic international dental hospital. *Prof Med J* 2014; 21(2):343-346
13. Ghasemi H, Murtooma H, Torabzadeh H, VehkalahtiMM. Knowledge of and Attitudes towards Preventive Dental Care among Iranian Dentists. *Eur J Dent* 2007; 1: 222-229.
14. Autio-Gold J, Tomar S. Dental students'

- opinions and knowledge about caries management and prevention. *Journal of Dental Education*, 2008; 72(1).
15. Garcia R, Sohn W. The paradigm shift to prevention and its relationship to dental education. *Journal of Dental Education*, 2012; 76(1).
 16. Melbye M R, Armfield, et al. The dentist's role in promoting community water fluoridation: A call to action for dentists and educators. *JADA*.2013; 144(1)

The Authors:

Kanwal Nazir Arbab
Peshawar Dental College and Hospital, KPK

Sami. S. Khan
Assistant Professor,
Community and Preventive dentistry.
Peshawar Dental College and Hospital, KPK

Aamir Hameed
Peshawar Dental College and Hospital, KPK

Prof. Dr. Ayaz. A. Khan
Department of Dental,
Shaikh Zayed Hospital,
Lahore

Corresponding Author:

Kanwal Nazir Arbab
dr.kanwal.arbab@gmail.com
Peshawar Dental College and Hospital, KPK