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Preventive methods of dental caries is a problem of most general practitioners yet: A survey of knowledge, attitude and practice

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Original Article

Abstract

BACKGROUND AND AIM: It is clear that education of parents and physicians regarding the importance of caries prevention will improve children's dental health. Most of the times pediatric and general dentists are dependent on the knowledge base and attitude of pediatricians and family practice physicians for referral of infants and young children in need of preventive and restorative care. This study was conducted to assess the knowledge, attitudes and practice of general dental practitioners and pediatricians in relation to techniques used to prevent dental caries, including use of fissure sealants and fluoride therapy, in the south-east of Iran.

METHODS: A cross-sectional survey was conducted between 399 general practitioners and pediatricians in the south-east of Iran. Data collected through a self-administered questionnaire consisted of demographic characteristics, questions that evaluating, knowledge, attitude and practice level regarding preventive methods of dental caries. Then, scores were given to each question and sum of the scores was categorized to weak, moderate and good. These scores were evaluated as follows: < 50%: weak, 50-75%: moderate, and > 75%: good. Data analyzed by SPSS using independent-sample t-test and linear regression models.

RESULTS: In this study, 399 questionnaires were completed including 352 (88.2%) general practitioners and 47 (11.8%) pediatricians. The findings indicated that general practitioners and pediatricians had moderate knowledge (52.6%), good attitude (76.9%), and moderate practice (38.6%) regarding preventive methods of dental caries.

CONCLUSION: Although general practitioners and pediatricians have more communication and closer relationship with target group of caries unfortunately, they had not desirable knowledge and practice regarding fluoride and fissure sealant therapy.

KEYWORDS: Dental Caries; Prevention; General Practitioner; Pediatrician; Knowledge

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Maintaining oral health helps achieve good general health. Many children have inadequate oral and general health because of active and uncontrolled dental caries, yet dental caries is the most common chronic childhood disease and this situation effects on general health.[1] Decline in caries prevalence in developed countries has been related with improved oral hygiene methods and several preventive programs unlike developed countries where the focus is often on curative care. Undoubtedly, both children and adults will benefit from the frequent use of fluorides in that dental caries can be prevented and managed by fluorides. Several controlled clinical trials have shown that the fluorides can prevent cariogenic activities in several

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different ways.[2] Furthermore, many clinical studies have reported on the success of pit and fissure sealants with respect to caries reduction.[2] Since infants and children are frequently visited by their primary care (medical) providers, there is an opportunity for these practitioners to promote oral health and refer children for dental care.[3] In general, pediatricians visit children as the first health-care personnel. As a result, they have an important role in detecting and managing orodental conditions and should gain knowledge in dealing with these conditions due to their high prevalence rate, differences in the prevalence rates in different races and socioeconomic groups and inadequate access of a large number of children to professional dental preventive and therapeutic services. Although there has been a decrease in the prevalence rate and severity of cariogenic activity in recent years, the number of children aged 5-17 years with dental caries has increased 5 folds compared to those with asthma.[4,5] It's obvious that education of parents and physicians regarding the importance of caries prevention will improve children's dental health.[6] Most of the times pediatrics and general dentists are dependent on the knowledge base and attitude of pediatricians and family practice physicians for referral of infants and young children in need of dental care.[7] In recent years, there has been a decrease in continuous education programs in the medical field on oral health, but pediatricians have the opportunity to increase their knowledge oral health matters so that they can provide oral health-care services as depicted in AAP policies for oral health risks.[5] Unfortunately, little attention has been directed toward this role of pediatricians in Iran and in many other countries.

According to our search, there are few studies regarding knowledge, attitude and practices of general practitioners and pediatricians about dental preventive programs (fluoride and fissure sealant therapy) in our society. In addition, little published literature has focused on the extent to which pediatricians participate in preventive oral health programs.[8]

The purpose of this study was to determine the knowledge, attitude and practices of general practitioners and pediatricians regarding preventive methods of dental caries (fissure sealant and fluoride therapy) in the south-east of Iran.

Methods

A cross-sectional survey was conducted between general practitioners and pediatricians in Province of Kerman. Kerman Province is the largest Province in Iran and is located in the south-east of the country with a population of over 2 million. The racial structure of the population in this Province is heterogeneous.

This study was approved by ethics committee of Kerman University of Medical Sciences (k/91/111). The name list of general practitioners and pediatricians was obtained from Kerman Medical Council. The list included 790 general practitioners and 50 pediatricians. Out of this, 352 General Practitioners and 47 pediatricians were selected through systematic random sampling. After explanation of the survey objectives, the participants were asked to complete informed consent. The subjects were asked to fill the questionnaire anonymously and were reassured that the responses they provided would be kept confidential. A researcher-designed self-administered questionnaire was given to the participants. This questionnaire consists of 6 parts:

1. Demographic data such as age, gender, scientific degree, number of years after graduation, number of patients visited per day, working hours per week and years of activity.

2. Knowledge level regarding caries preventive methods (fissure sealant and fluoride therapy) was determined by 6 questions. Each correct answer was given 1 score and wrong or no idea answers received 0 score). Sum of the knowledge scores was varied between 0 to 6 and

categorized to weak (0-2.99), moderate (3-4.5), and good (> 4.5). These scores were evaluated as follows: < 50%: weak, 50-75%: moderate and > 75%: good. Similar scores were given to attitude and practice.

3. Attitude level was evaluated based on 5 questions. Their attitude toward caries preventive methods was assessed using 5-point Likert scale (rating from completely agree to completely disagree) and answers are coded 0-4. Therefore, the range of attitude scores was varied from 0 to 20.

4. Practice level was assessed based on 9 yes/no questions and the answers are coded 0 to 1. Finally, range of practice scores was differed from 0 to 9.

5. Participants were asked about sources that they used for getting information regarding preventive caries methods.

6. Self-assessment evaluation consists of 2 questions which have been received fissure sealant and fluoride therapy for their children.

For assessment of questionnaire validity, it was revised by 8 specialists (pedodontist, orthodontist, oral pathologist, oral radiologist, and oral disease specialist). After discussions with the experts, two questions were added and five questions were revised, which was the modified version of the primary questionnaire, and no irrelevant question was detected. Content validity index (CVI) for each question was calculated. In each question which CVI was lower than 0.78, it had been modified. After modification, index of each question and questionnaire was obtained. Questionnaire index was 0.8. Regarding reliability evaluation, the questionnaire was completed by 43 physicians and pediatricians. Cronbach's alpha confirmed the questionnaire's reliability and an acceptable reliability was shown ($\alpha = 0.66$). Data analysis was performed by the SPSS18 software, using independent -sample t-test and linear regression models. Values of $P < 0.0500$ were considered statistically significant.

Results

In this cross-sectional survey, 399 questionnaires were analyzed, including 352 (88.2%) General practitioners and 47 (11.8%) pediatricians. The mean age of participants was 40.16 ± 20.85. More than half of participants were females (52% general practitioners and 57.4% pediatricians). Demographic characteristics of participants according to scientific degree were shown in table 1.

Mean score of knowledge questions was 4.03 ± 0.97 (67.13 ± 16.33).

Knowledge level of general practitioners and pediatricians was shown in figure 1. Years number after graduation ($P = 0.0230$), gender ($P = 0.0001$), and scientific degree ($P = 0.0150$) had significant relationship with knowledge mean of persons. In the other hand, mean score of knowledge in females was higher than males. Mean score of knowledge in pediatricians was higher than General Practitioners, but in participants with low clinical experience, this score was more. Multivariate analysis has been shown in table 2.

Mean score of attitude questions was 16.5 ± 3.1 (82.65 ± 15.54). Level of participants' attitude toward prevention of dental caries was described in figure 1. A significant relationship was seen in years' number after graduation ($P = 0.0060$) and years of activity ($P = 0.0150$) with the mean score of attitude.

Table 1. Demographic characteristics of general practitioners and pediatricians

Variable	General practitioner	Pediatrician
Male [n (%)]	169 (48)	20 (42.6)
Female [n (%)]	183 (52)	27 (57.4)
Years of medical practice (mean ± SD)	11.4 ± 8.2	19.7 ± 16.3
Working hours per week (mean ± SD)	39.85 ± 16.70	35.75 ± 9.62
Number of patients visited per day (mean ± SD)	33.84 ± 39.60	39.6 ± 16.50

SD: Standard deviation

Table 2. Multivariate analysis between mean knowledge score and demographic variables in participants

Variable	Demographic characteristics	P	B
Knowledge	Gender	0.0001	+0.723
	Graduated year	0.0230	-0.030
	Scientific degree	0.0150	+0.825
Attitude	Years of medical practice	0.0150	+0.041
	Graduated year	0.0060	+0.047
Practice	Number of patients visited per day	0.0950	-0.004
	Scientific degree	0.0001	+1.794

Mean score of practice questions was 6.2 ± 2.4 (68.65 ± 26.67).

Participants' practice concerning dental caries prevention was shown in figure 1.

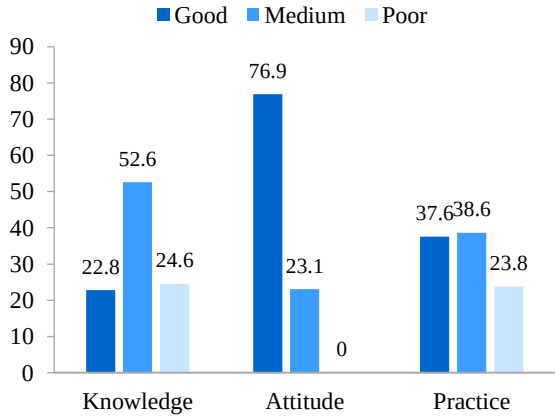

Figure 1. Knowledge, attitude and practice level of general practitioners and pediatricians

Significant relationship was shown in number of patients visited per day (P = 0.0950) and scientific degree (P < 0.001) with practice mean of participants.

Comparison of knowledge, attitude and practice of pediatricians and practitioners was demonstrated in table 3.

We found a significant relation between knowledge and attitude (P < 0.001), knowledge and practice (P = 0.004) also attitude and practice (P = 0.002) of all participants.

In the last section, 40.8% of participants stated that they had no specific resources about caries preventive methods and only 16.4% of them reported that they get preventive information from college courses and continuing education programs (Table 4).

Considering different types of preventive cares, children of practitioners and pediatricians have been received fissure sealant and fluoride therapy 4% and 6%, respectively.

Results revealed that 376 (94.2%) of participants need more information about caries preventive methods.

Discussion

This study tried to investigate knowledge, attitude and practices of General Practitioners and pediatricians toward preventive methods. All the study population had good level of attitude and moderate level of knowledge and practice, which confirms the findings of Yahya and Solmaz's study[9] regarding knowledge but it didn't confirm to attitude and practice. It indicated that the universities have paid more attention to preventive care in educational curriculum in recent years.

Table 3. Comparison of knowledge, attitude and practice numbers of general practitioners and pediatricians regarding preventive methods of dental caries

Variable	General practitioner (mean ± SD)	Pediatricians (mean ± SD)	P
Knowledge	65.0 ± 16.6	85.0 ± 14.0	< 0.0010
Attitude	80.0 ± 20.3	84.0 ± 11.2	0.7570
Practice	62.4 ± 20.5	79.6 ± 32.7	< 0.0010

SD: Standard deviation

Table 4. Sources of participants' information about caries preventive methods

Resources for caries prevention information	n (%)
Not specific resource	162 (40.8)
Colleagues	84 (21.2)
Scientific journals	77 (19.4)
College courses	35 (8.8)
Continuing education programs	30 (7.6)
Others	9 (2.2)

Similar to the previous study,[10] we found that higher educational degree leads to higher knowledge and practice level. It may be related to longer educational studies and more responsibility of pediatricians to preventive care.

Clinical experience had positive effect on attitude of general practitioners and pediatricians. Recently, graduated physicians had more knowledge level regarding caries preventive methods. Moreover, their knowledge number significantly increased 0.03 for each year. This fact is matched with Di Giuseppe et al.[10] and Eslamipour et al.[11] study. This finding may reflect that newer graduated persons have more information and they also spend more time for learning novel preventive methods.

Similar to other studies (Lewis et al.[12] and dela Cruz et al.[13] studies) patients' number per day had a significant relation to physician's practice. Physicians with crowded offices had poor practice regarding preventive interactions. A large number of barriers might have resulted in such a situation. One of the problems is short appointments which force the physicians to exclude preventive measures such as oral health. In addition, inadequate partnership between health professionals and oral health professionals to solve existing problems is another issue. It is strongly recommended to resolve these problems through an evidence-based and collaborative approach.

In this research, male's knowledge about preventive methods was significantly lower than females. It's indicated that females had more precise view and sensitivity to preventive measures and perhaps they feel more responsibility in comparison with males.

A survey of physicians' attitudes regarding pediatric dental health concluded that, although they are the first health professionals in contact with the parents, they are not well informed about dental health.[14] Sanchez et al. assessed the knowledge and attitudes of pediatricians and family practice physicians toward pediatric preventive dental care. Both groups recognized that they received inadequate information regarding pediatric preventive dental care during training and almost unanimously advocated increasing their knowledge through medical and specialty training or continuing education.[15] Clearly, family practitioners and other primary healthcare providers must receive additional education before they can assume a larger role in the early detection of oral and dental diseases.[16-18]

More than 90% of participants gain their information from colleagues or scientific journals and education programs, but only 9% of individuals get their information from college courses which confirms finding of studies by Sanchez et al.[15] and Eslamipour et al.[11] This finding showed that education of physicians is not enough desirable as it could be. Therefore, increasing preventive dentistry topics in the medical college courses can be useful in this respect. More than 94% of the participants need more information about preventive dentistry, which is in line with Bozorgmehr's et al. findings.[8] Fortunately, it's indicated that physicians know their weakness in this field. Hence, we strongly suggested to program for improving the knowledge of physicians. It is necessary to investigate the role of problem-oriented technique in continuous education programs. Educational programs have undergone revisions to improve them to impart knowledge to physicians to help them provide guidance on oral health practices for families and also prevent and offer therapeutic services for them. These efforts

entail major revisions in all the levels of medical education and in the policies and strategies involved to bring about improvements in the services provided by the physicians. In this context, commitment and proper attitudes are of utmost importance. A process of change such as this will require cooperation among many organizations and a pure dedication to ameliorate oral and dental preventive care for children. Social desirability may cause over –or under report attitudes and practices in self-report questionnaire. To avoid this weakness, we assured the respondents' anonymity.

We suggest that following measures may be taken to solve this problem.

1. Preventive dentistry topics and journals included in medical curriculum.
2. More communication between medical and dental students.
3. Encourage practitioners and pediatricians to refer the target group of caries (ages 3-12) to the dentists regularly.
4. Conferences should be held regarding caries preventive methods in medical schools.

Upgrade the knowledge about preventive dentistry can be done by sending the pamphlets, posters, and brochures to the practitioners and pediatricians.

Conclusion

Our research showed, although practitioners and pediatricians have more communication and closer relationship with target group of caries, unfortunately, they had not desirable knowledge and practice regarding caries preventive methods.

Conflict of Interests

Authors have no conflict of interest.

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