

An exploration of approaches and difficulties in prevention of dental diseases in Saudi Arabia.

Rafi Ahmad Togoo

ABOUT THE AUTHOR

Dr. Rafi Ahmad Togoo.

Associate Professor,
Department of Preventive
Dental Sciences.
King Khalid University
College of Dentistry.
Abha Saudi Arabia.

Corresponding author

Dr. Rafi A Togoo.
PO Box 3263.
Abha, Saudi Arabia.
Email:
rafitogoo@gmail.com.
Telephone: 966-17-2418046

Abstract

Aim: Dental caries and periodontitis are the most common oral diseases in Saudi Arabia. Oral health awareness is very low and prevention of oral diseases is not a high priority in this region. A national survey was conducted to assess the dentists' attitudes and challenges in implementation of preventive dental programmes in Saudi Arabia.

Materials and methods: A questionnaire based national cross-sectional survey among 500 dentists was conducted under the auspices of Directorate of Dentistry, Ministry of Health. The data was analyzed using Microsoft excel 2010 program and descriptive statistics were obtained.

Results: The response rate was 87.8% (n=439). 72.4% believed that preventive dental services are beneficial, social factors (62.5%) are the most challenging factors in implementing preventive dental programs, followed by inadequate work force (41.6%), 64% felt dental auxiliaries are important, 68.35% felt mobile dental units play active role in providing on-site preventive treatments and 95.4% felt the need for receiving regular updates on preventive dentistry.

Conclusion: Dentists' attitudes and challenges in implementation of preventive dental programs were identified. The survey highlighted the need for implementation of extensive and continuous community oral health education programmes in KSA.

Key words: *Preventive dental programmes, Dentists, Dental auxiliaries*

Introduction

Kingdom of Saudi Arabia (KSA) is a developing country [1] and has undergone a rapid change in its socio-economic situation, food consumption patterns, life style and health status during the past four decades [2]. According to the Ministry of Health (M.O.H) statistics, the most common oral diseases are Dental Caries (DC) and Periodontitis[3]. Knowledge and awareness of oral health is very low in KSA, and oral hygiene routines are introduced relatively late in life[4]. Furthermore, prevention of oral diseases is not a high priority in the region and majority of the individuals visit dental clinics only when they experience toothache [5]. Incidence of DC in young children is rising in KSA. According to a study, DC in Jeddah, now, has increased to 96 percent as compared to 74 percent in the year 2008. Currently, KSA has one of the highest rates of DC in the world [6]. A total of 31.69% of the citizens are under 15 years of age. With a population birth rate of about 2.33% per year, and hence an ever increasing number of children, the social and economic burden associated with the rising incidence of dental disease in childhood requires serious consideration[7]. Prevention is the main objective of any health planning strategy [8]. Clinical and public health research has shown that a number of individual, professional and community preventive measures are effective in preventing common oral diseases like dental caries and periodontal diseases [8]. Opportunities exist for oral health promotion and disease prevention through preventive dental programmes (PDP) [8]. Dentists are the professionals who educate the public about the oral health care [9] and they can influence their patients' oral health related behavior by integrating oral health education, nutritional counseling and preventive dental care into their

Materials and methods

A questionnaire based cross sectional survey was conducted under the auspices of Directorate of Dental services, Ministry of Health (M.O.H), Kingdom of Saudi Arabia. 500 dentists from all the 20 health provinces of the country working for the M.O.H dental facilities were selected by systematic random sampling to form the study group. The questionnaire (Table 1), written in English had questions on dentists' opinions about preventive dental care, role of dental auxiliaries and mobile dental units in preventive dental programmes and challenges in implementation of preventive dental

programmes. Questionnaires were distributed and then collected by official mail. Participants were given a time frame of four weeks to return the questionnaires and no attempts were made to send reminder mails. Participation was voluntary and questionnaires were filled and returned anonymously. Completed questionnaires were returned by 439 dentists and those 61 who did not return were excluded. The data was analyzed using Microsoft Excel 2010 programme and descriptive statistics were obtained. If the questionnaire was not filled completely, it was not excluded as a whole, but only the answered questions were taken into consideration in statistical analysis.

Table 1 Questionnaire

1. Do you believe that preventive services would be effective in decreasing the prevalence of dental diseases in the country?

Yes No To some extent

2. Do you believe dental hygienists & other Para-dental staff play an active role in preventive dental programs?

Yes No To some extent

3. Are mobile dental Units important in providing on-site dental treatment and preventive services to the community?

Yes No need more information

4. Identify the challenges in implementation of preventive dental programs and Rank them in the order of difficulty? (From 1-4, 1 being the most challenging)

- Inadequate work force
- Lack of cooperation from schools
- Lack of motivation of dental staff
- Social factors

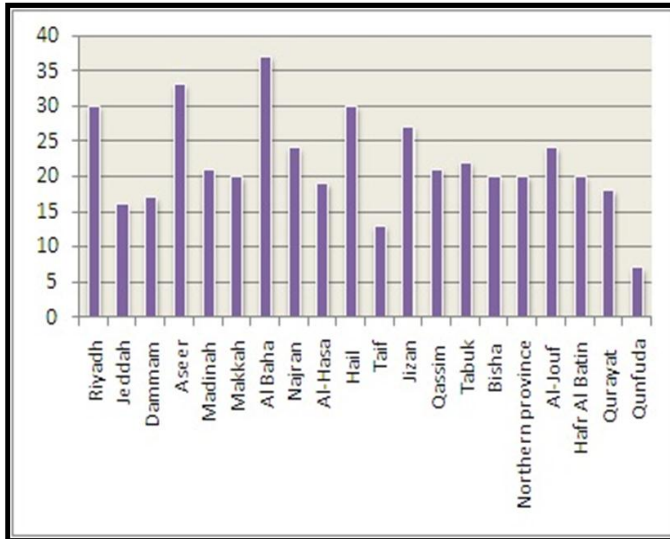
5. Do you want regular updates about Preventive dentistry?

Yes No, will ask when needed No

Results

A total of 439 questionnaires were received and analyzed, giving a response rate of 87.8%. The region-wide distribution of respondents is summarized in Figure 1.

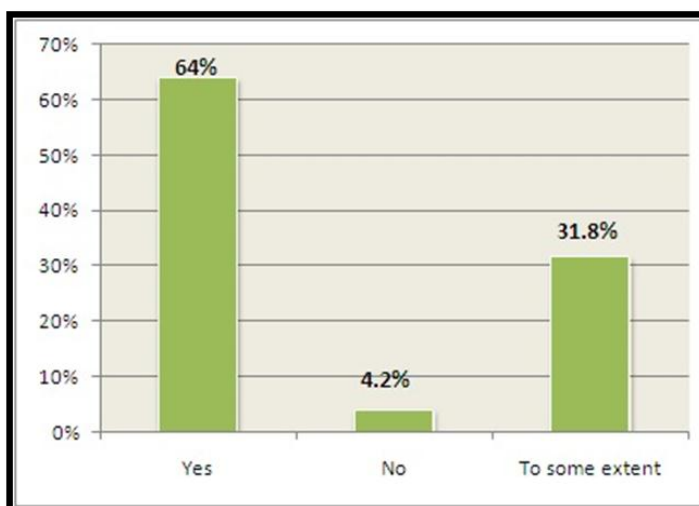
Figure 1 Region wise distribution of respondents



Majority of the respondents (72.4%, n= 318) agreed that preventive dental services are effective in decreasing the prevalence of dental diseases in the country, 2.2% of them (n= 10) replied as 'no' and 25.4% of the dentists (n= 111) answered as 'to some extent'.

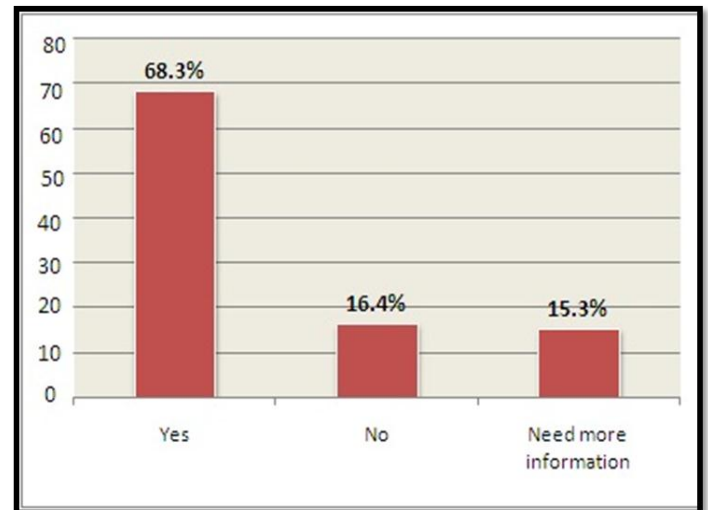
When enquired about the role of dental hygienists and other Para-dental staff in preventive dental programs, majority of them (64%, n=277) believed that they play an active role, 31.8% (n=138) answered as 'to some extent' and 4.2% (n=18) replied as 'no'. (Figure 2)

Figure 2 Respondents' opinions on importance of dental auxiliaries in preventive dental care



68.3% of the respondents (n=300) believed that mobile dental units are important in providing on-site dental treatments and preventive services to the community, followed by 15.3% (n=67) who 'needed more information' and 16.4% (n=72), who replied as 'no'. (Figure 3)

Figure 3 Respondents' opinions on importance of mobile dental units in preventive dental care



In identifying the challenges in the implementation of PDP, 62.5% of the respondents cited social factors as the most challenging, followed by inadequate work force (41.6%), lack of cooperation from schools (40%) and lack of motivation of dental staff (33.3%).

95.4% (n=419) felt the need of receiving regular updates about preventive dentistry, 2% (n=9) of them answered as 'would ask later' and 2.6% (n=11) replied as 'no'.

Discussion

The M.O.H is the biggest provider of dental services in the Kingdom and employs dentists qualified from Saudi universities as well as expatriate dentists from other countries. According to several studies reported in literature, DC is a major health concern in KSA, with prevalence ranging as high as 90 - 96% [10-13]. It is next followed by periodontitis, which is highly prevalent in this population [14-16]. This is the first study that has analyzed data from a national random sample of dentists in Saudi Arabia. Our results provide valuable perspectives towards dentists' opinions on implementation of PDP.

Preventive approaches in dental practice and community oral health awareness programmes have been helpful in controlling these two preventable diseases in recent decades, globally [17]. Accordingly, 72.4% of the respondents (n= 318) believed that preventive dental services are effective in decreasing the prevalence of dental diseases in the country.

Contrary to the developed countries, the caries

experience appears to be higher in Saudi children with higher socioeconomic status [18]. In addition, the difference in caries experience in urban and rural areas often reported for developing countries does not appear to apply for KSA [18,19]. The most challenging aspects in the implementation of PDP, as identified by 62.5% of the respondents, are 'social factors', that include, lack of awareness of oral health care and hygiene practices, lack of parental guidance with the late introduction of oral health care, a minimal interest in regular dental visits, poor dietary habits with the excessive consumption of sweets and junk foods, presence of isolated and mobile communities that do not have access to oral health promotion programmes, little attention to child's regular brushing due to more number of children in the family, practicing only traditional oral hygiene practices even with changing food consumption habits.

In support of this, are the reported studies by Al-Shalan [20], who stated that Saudi parents' knowledge and attitude about different methods of caries prevention are influenced by their level of education and family income and Al-Sadhan[21], who reported that children in public schools and children of mothers with lower school education consumed more sweet snacks and drinks than other children. In a similar Finnish study, Honkala et al reported that adolescents with parents of higher occupational and educational levels consumed less sugar containing products[22].

In Saudi Arabia there are large variations in oral hygiene habits, related mainly to age and socioeconomic status. The chewing stick, or Miswak, is commonly used as a traditional and spiritual custom [4] and about half the population in Saudi uses it regularly [23]. Miswak releases fluoride when chewed upon, exerts antimicrobial effect on streptococcus mutans and is proved to be effective in decreasing dental plaque, gingivitis and DC [23]. In comparison to a conventional tooth brush, the only disadvantage of Miswak is, because of its straight shape, cannot reach and clean lingual surfaces of teeth and inter dental spaces[23]. Oral hygiene may be improved by complementing traditional Miswak use with toothbrushing and by tailoring oral hygiene recommendations to educational level [24]. A recent study reported a significant improvement in plaque score and gingival health when Miswak was used as an adjunct to tooth brushing [25].

41.6% of the respondents cited that inadequate work force is second most challenging barrier to overcome in the implementation of PDP. Supporting this finding is the dentist / people ratio (1:2850) in KSA, which is inadequate to effectively implement PDP at national level[26]. Inclusion of dental auxiliaries into the PDP team can help address the workforce inadequacy. 64% (n=277) of the respondents believed that dental hygienists and other para-dental staff can play an active role in community and school dental health education

programmes, when properly trained. Preventing and treating oral disease requires a team effort. The dental auxiliary can be trained to play a key role in the comprehensive patient examination, gathering data, educating patients on risk factors for disease, and collaborating with the dentist for an effective preventive and therapeutic treatment plan [27].

Outreach programs using mobile dental units (M.D.U) are beneficial, as they take oral care directly to the people. Accordingly, 68.3% (n=300) of the respondents felt that M.D.U play an important role in providing on-site dental treatments and preventive services to the community. The M.D.U are valuable in providing preventive oral healthcare services like topical fluoride application, pit and fissure sealants and oral prophylaxis[28].

A vast majority of them (95.4%, n=419) were interested in receiving regular updates on preventive dentistry. It is a positive finding and suggests that dentists in KSA have sufficient preventive orientation. Active learning opportunities should be created through the Continuing education programs and workshops to enable them to implement effective preventive dental programs.

In interpreting the findings of the present study, it is important to acknowledge the possible limitations. Cross-sectional studies are often limited by respondent bias, but can serve as impetus for further studies in this area. There is limited research conducted in this area; therefore, it was difficult to make comparisons.

Conclusion

This study has provided baseline information on dentists' attitudes and identified challenges in the implementation of preventive dental programs. The results will be useful for comparison in future research within the country as well as in the middle- east region. The findings have highlighted the need for implementation of extensive and continuous oral health education programmes tailored to the educational levels of individual communities, complementing traditional Miswak use with toothbrushing, more usage of mobile dental units and training programs for dentists and dental auxiliaries to collaborate and work as a team.

Acknowledgement

The authors would like to thank the Dental Supervisors of the regions and all the dentists who participated in the study.

References

1. Brown A. Caries prevalence and treatment needs of healthy and medically compromised children at a tertiary care institution in Saudi Arabia. *Eastern Mediterranean Health Journal* 2009; 15:378-85.
2. Abdulrahman OM, Hamed RT, Abdelmonem SH, Hamza AT. Food-Based Dietary Guidelines for the

- Arab Gulf Countries. *Journal of Nutrition and Metabolism*. 2012; 2012: 1-10.
3. Kingdom of Saudi Arabia. Ministry of Health. Key facts on oral health. Available at <http://www.moh.gov.sa/en/HealthAwareness/EducationalContent/Diseases/DiseasesOralanddental/Pages/default.aspx>. [Updated on 26 March 2012, last accessed on 5 September 2013].
 4. Al-otaibi M, Angmar- Mansson B. Oral hygiene habits and oral health awareness among urban Saudi Arabians. *Oral Health & Preventive Dentistry* 2004;2:389-96.
 5. Dental practitioners urge stronger oral care research. www.saudiqazette.com Available at: <http://www.saudiqazette.com.sa/index.cfm?method=home.regcon&contentid=20120228118530> [Updated on 28 February 2012, last accessed on 5 September 2013].
 6. Alsibai A. Dental problems on rise in kingdom's children. Saudi Gazette. Available at <http://www.saudiqazette.com.sa/index.cfm?method=home.regcon&contentid=20120125116316> [Last accessed on 5 September 2013].
 7. Kingdom of Saudi Arabia. Ministry of Health portal. Health Indicators for the year 1431. Available at <http://www.moh.gov.sa/en/Ministry/Statistics/Indicator/Pages/Indicator-2012-01-10-0001.aspx> [last accessed on 6 October 2013].
 8. World Health Organization. Strategies and approaches in oral disease prevention and health promotion. Available at http://www.who.int/oral_health/strategies/cont/en/index.html [last accessed on 6 October 2013].
 9. Eijkman MAJ, Dewith C. Answers from dentists, dental hygienists and dental assistants to questions asked by patients concerning preventive dental matters. *Community Dentistry and Oral Epidemiology* 1980;8: 339-346.
 10. Al-Malik M, Rehbini Y. Prevalence of dental caries, severity, and pattern in age 6 to 7-year-old children in a selected community in Saudi Arabia. *Journal of Contemporary Dental Practice* 2006; 7: 46-54.
 11. Al Wazzan KA. Dental caries prevalence in 6-7 year-old schoolchildren in Riyadh region: A comparative study with the 1987 - Oral Health Survey of Saudi Arabia Phase I. *Saudi Dental Journal* 2004; 10: 54- 60.
 12. Wyne AH, Al-Ghorabi BM, Al-Asiri YA, Khan NB. Caries prevalence in Saudi primary schoolchildren of Riyadh and their teachers' oral health knowledge, attitude and practices. *Saudi Medical Journal* 2002; 23:77-81.
 13. Al Dosari AM, Wyne AH, Akpata ES, Khan NB. Caries prevalence and its relation to water fluoride levels among schoolchildren in Central Province of Saudi Arabia. *International Dental Journal* 2004; 54: 424-428.
 14. Al zahrani M, Kayal R. Alveolar bone loss and reported medical status among a sample of patients at a Saudi dental school. *Oral Health & Preventive Dentistry* 2006;4:113-118.
 15. Hossain M, Fageeh H, Elagib M. Prevalence of Periodontal Diseases among Patients Attending the Outpatient Department at the College of Dentistry, King Khalid University, Abha, Saudi Arabia. *City Dental College Journal* 2013; 10: 10-15.
 16. El- Angbawi MF, Younes SA. Periodontal disease prevalence and dental needs among schoolchildren in Saudi Arabia. *Community Dentistry and Oral Epidemiology* 1982 ;10:98-9.
 17. Ghasemi H, Murtomaa H, Torabzadeh H, Vehkalahti M. Knowledge and attitudes towards preventive dental care among Iranian dentists. *European Journal of Dentistry* 2007;1: 222- 229.
 18. Baghdadi ZD. Managing dental caries in children in Saudi Arabia. *International Dental Journal* 2011; 61: 101-108.
 19. Al-Shammery AR. Caries experience of urban and rural children in Saudi Arabia. *Journal of Public Health Dentistry* 1999; 59: 60-64.
 20. AlShalan TA. Saudi parents knowledge of and attitude toward the prevention of dental caries. *Saudi Dental Journal* 2003;15:27-32.
 21. Al-Sadhan SA. Oral health practices and dietary habits of intermediate school children in Riyadh, Saudi Arabia. *Saudi Dental Journal* 2003;15:81-87.
 22. Honkala E, Eskola A, Rimpela M, Rajala M. Consumption of sweet foods among adolescents in Finland. *Community Dentistry and Oral Epidemiology* 1982;10:103-10.
 23. Ezoddini- Ardakani F. Efficacy of Miswak (*salvadora persica*) in preventing dental caries. *Health* 2010; 2:499-503.
 24. Al otaibi. The miswak (chewing stick) and oral health. Studies on oral hygiene practices of urban Saudi Arabians. *Swedish dental journal. Supplement* 2004;167:72-75.
 25. Dahiya P, Kamal R, Luthra RP, Mishra R, Saini G. Miswak: A periodontist's perspective. *Journal of Ayurveda and Integrative Medicine* 2012; 3: 184-187.
 26. Kingdom of Saudi Arabia. Ministry of health portal. Available at <http://www.moh.gov.sa/en/Ministry/MediaCenter/News/Pages/News-2013-01-19-001.aspx> [updated 22 January 2013, last accessed on 6 October 2013].
 27. Lebeau J. Dentistry's proactive role in preventing disease. Available at <http://www.dentalaegis.com/cced/2013/01/dentists-proactive-role-inpreventingdisease#sthash.dFLU0fxh.dpuf> [last accessed on 6 October 2013].
 28. Werner C, Graqq P, Geurink K. The Facilitating Role of Mobile Dental Van Programs in Promoting Professional Dental Education. *Brazilian Dental Journal* 2000; 11: 127-133.