

Oral health situation of children, mothers and schoolteachers in Saudi Arabia

The objective of the PhD project was to analyse the oral disease pattern and oral health-related behaviour of children in primary schools of Medina City, Saudi Arabia

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The present research project was conducted within the Department of Community Dentistry and Graduate Studies, School of Dentistry, University of Copenhagen, which also serves as the WHO Collaborating Centre for Community Oral Health Programmes and Research.

Reports indicate that the prevalence of dental caries of children in the Middle East is low to moderate with respect to the permanent dentition, and the surveys also indicate a relatively higher level of dental caries in the primary teeth. In Saudi Arabia, however, comprehensive survey data on oral health behaviour, knowledge and attitudes in relation to oral health are not available, and there is a need for community-specific data which may help the planning and evaluation of oral health action programmes. The present project was undertaken to support this process.

Objectives

The objectives of the present study were: 1) to describe and analyse the oral health status of Saudi Arabian schoolchildren, 2) to describe and analyse the oral health behaviour of children, 3) to describe the level of dental knowledge, attitudes and behaviour among the mothers, 4) to describe the level of dental knowledge and attitudes among primary schoolteachers, and 5) to assess teachers' attitudes towards caries prevention and oral health education for schoolchildren. The intention of the study was to provide a base-line for the planning and evaluation of future school-based oral health promotion among Saudi Arabian schoolchildren.

Study populations and methods

The study took place in Medina City, Saudi Arabia, and was conducted as a cross-sectional survey. In order to accomplish the objectives of the study, the following target groups were considered: schoolchildren, mothers, and schoolteachers.

Schoolchildren (n=480) of grades 1 and 6 were identified from eight representative primary schools of the Medina inner city district, and four boys' schools and four girls' schools were chosen. The sampling of schools was based on

the convenient sampling principles combined with the WHO Pathfinder Methodology.

The mothers of the children participated in the sociological part of the study (n=480). Finally, a representative sample of primary schoolteachers (n=120) was chosen for the study according to the two-stage random sampling principle.

The data on oral health status of the children were collected by clinical examinations according to the WHO criteria. The mothers responded to self-administered questionnaires, including variables on dental knowledge, attitudes and behaviour of child and mother. With respect to the schoolteachers, self-administered questionnaires were designed to cover the following aspects: dental knowledge, behaviour, attitudes, and involvement in oral health education. Finally, the content of fluoride in drinking water was analysed and the concentration was found at the level of 0.25pm-0.64ppm.

Results

The prevalence of dental caries in six-year-olds was 87% for the primary teeth. Among twelve-year-olds the prevalence proportion was 58% for the primary teeth, whereas 83% were affected by caries in the permanent dentition. On average, six primary teeth were affected by dental caries at age six, and most of the caries experienced was ascribed to primary caries. At age twelve, the mean DMFT was 2.9. In both dentitions, untreated dental caries constituted most of the total caries experience for the permanent teeth. No significant differences in the occurrence of dental caries were found between the two sexes. The proportion of six-year-olds with bleeding gums was 39%, and among the twelve-year-olds 49%.

Oral health behaviour

The results of the questionnaire survey revealed that nearly half of the children had seen a dentist within the past year while 15% of the mothers reported that their child had never been to a dentist. About 46% of the children brushed their teeth at least once a day, however, the children were rarely assisted by their mothers in the daily tooth cleaning. The traditional

Miswak chewsticks were used by 16% of the children. The Miswak sticks are extracted from the roots of the Arak tree (*Salvadora Persica*) and have been recommended by Muslims for cleaning of teeth for hundreds of years. According to the mothers, the consumption of various sweets and biscuits as well as the intake of hidden sugar (sugary drinks) was extraordinarily frequent among the children. For example, 40% of the children had soft drinks at least twice a day and, moreover, 30% of the children had chocolate bars at least twice a day.

Mothers' dental care and knowledge

As to the mothers themselves, 9% had never been to a dentist and 51% claimed a visit within the last twelve months. Somewhat more mothers (62%) than children stated that they brushed their teeth at least twice a day. The present survey indicated that the oral health knowledge of Saudi mothers was rather diffuse. On the one hand, a substantial proportion of the respondents emphasized the relevant causal factors of dental diseases (i.e. bacteria, sugar, or improper tooth cleaning). On the other hand, relatively large numbers of the mothers also claimed the importance of other factors such as »worms«. Regular dental visits were mentioned as important for the prevention of dental caries by 75%, whereas 41% of the mothers emphasized the use of traditional Miswak. Dentists and television were the most common sources of dental health information, however, family and friends also played an important role in dental health communication.

Socio-behavioural factors in oral health of children

The bivariate analyses revealed that caries experience of the children was associated with the educational level of the mothers and their employment status. The analyses also demonstrated a relatively high level of caries among those children who frequently consumed sweets. However, to further evaluate the importance of socio-behavioural factors a number of multivariate analyses were undertaken.

Teachers' dental knowledge

Most of the teachers knew about the role of bacteria and sugar in the development of dental caries, but less relevant factors were also mentioned (i.e. pregnancy). The majority of teachers acknowledged the importance of regular dental visits in the prevention of dental caries, however 73% of the teachers recommended the use of Miswak as well. Again, the dentist and television were the main sources of dental health information.

Conclusions

The present study gave support to the following major conclusions:

- dental caries and poor gingival conditions are prevalent among Saudi children, and the distribution of oral diseases in children is partly affected by socio-behavioural factors
- the tooth cleaning habits of Saudi children are most irregular, and the consumption of sweets and hidden sugar is extraordinarily high
- less than half of the Saudi schoolchildren are seen annually by a dentist, and dental visits are primarily undertaken for symptomatic reasons
- only a few of the Saudi mothers help their children in the daily tooth cleaning
- inconsistencies with respect to oral health knowledge, attitudes and behaviour of the Saudi mothers and children are found, and the need for oral health education is thusly emphasized
- according to the Islamic tradition, Miswak is still frequently used and recommended for oral health by the mothers and the schoolteachers
- moderate levels of dental knowledge and attitudes are found among Saudi schoolteachers when compared with the mothers. Therefore, systematic training is needed in order to prepare the schoolteachers for oral health education of the children.

From a public health care point of view, the priority should be given to health promotion and disease prevention. Due to the potential of reaching all children, the primary school provides a unique setting for oral care. Therefore, it seems reasonable that school-based health education would be based on the involvement of primary schoolteachers. ■

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The thesis includes 74 pages and 41 tables and may be requested at the author. Address: Department for Community Dentistry and Graduate Studies, School of Dentistry, 20 Nørre Alle, DK 2200 Copenhagen.

The project was supervised by Professor, DrOdontSci, MSc *Poul Erik Petersen*, and the thesis was defended at the University of Copenhagen on 26 March, 1997. Members of the jury: Professor, DrOdontSci *Ingolf Möller*, WHO/EURO; Associate Professor, Odont.Dr. *Arne Halling*, University of Linköping, and Associate Professor, PhD, *Kaj Stoltze*, University of Copenhagen.

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