

importance of these strategies, in 1996 the Jeddah Primary Health Care (PHC) Directorate launched an annual health education campaign in primary schools to increase awareness among children. This paper describes the work-up and implementation of the health education and screening activities of the campaign, reports the prevalence rates of dental caries among male and female primary-school children over 2 consecutive years and outlines some of the epidemiological factors associated with dental caries.

Methods

All 296 public primary schools in Jeddah were registered for visitations by 18 dentists over 4-week periods during 1996 and 1997. A preparatory visit by each dentist to his or her assigned schools was carried out to ensure the participation of the school staff, prepare the health education setting and organize the dental screening. All children were targeted for the health education activities conducted by the dentists and their assistants in classrooms and school theatres. These activities included: teaching children about plaque detection using the coloured tablet technique provided by Unilever, explaining the right method of toothbrushing using the jaw model, distributing free toothbrushes and toothpaste, broaching dental health education messages through scientific and cultural school activities and distributing health education pamphlets and flyers.

Screening to determine the prevalence of clinically identifiable dental caries was limited to children in the first grade (6-7 years of age) at the time of the eruption of the first permanent molar teeth, and fourth grade (10-11 years of age) at the time of the ending of mixed dentition. Screening was carried out by simple dental examination in the classroom setting using the World Health Organization diagnostic criteria for oral health surveys [5]. The decayed, missing and filled (DMF) index was not used, as it was not expected to find missing and filled teeth in large numbers among these age groups [6]. Dental caries detected were either treated in the mobile clinic or referred to designated dental clinics at nearby primary health care centres. Unscreened children in other grades were asked to consult the nearest dental clinic for screening.

Children were divided into two distinct social classes (low and high) according to the known socioeconomic status of the geographical districts in which the schools are located. Rates of dental caries were calculated for each school grade, sex and social class to test possible significant differences among them using the χ^2 statistical significance test.

Results

Of the 296 Jeddah schools, 259 and 264 primary schools were visited during 1996 and 1997 respectively. Of the estimated total of more than 240 000 students, the number of children screened in the first and fourth grades was 82 250 (50.3% screened in 1996 and 49.7% screened in 1997). The general prevalence rate of positively detected cases of any level of dental caries was 83% among children in both the first and fourth grades for the 2 years. [Table 1](#) compares the specific prevalence among male and female children. [Table 2](#) details the number of male and female children screened and the prevalence of positively detected cases of any level of dental caries among them by grade. It can be seen from both tables that female children showed higher rates in both grades. Rates of dental caries showed significant differences according to social class ([Table 3](#)). Low social classes had a significantly higher rate in both sexes ($P < 0.0001$).

Discussion

Determining the prevalence of dental caries is a necessary step for health care planners to identify resources needed for dental services in the community and to provide preventive and curative services to combat dental health problems. Field surveys in this cross-sectional design are important tools to describe the status of dental problems in the community, but they cannot be

used to isolate specific relationships between various parameters studied and the cumulative effect of dental caries [7]. Nevertheless, the impact of these surveys is quite significant and their use is justifiable in mass dental screening, diagnosis and referral of individual cases and dissemination of the proper dental care practices among the population.

The 83% rate of dental caries documented for primary-school children is high and it is an endemic problem of high prevalence among both sexes. Similar studies in Saudi Arabia have noted high rates of dental caries and other related tooth mortality in the range of 44% and 68% among both primary-school children and the young population in general [1,7]. One of the main underlying causes suspected is dietary patterns among schoolchildren [8]. Poor dental care practices and a service shortage to these groups are other factors documented in Saudi Arabia [9,10]. Studies from other developing countries report similarly high rates. A recent study in Panama calculated a very low rate (6.8%) of 12-year-old schoolchildren who were caries-free [11]. Another study from Brazil showed the prevalence of dental caries in 5- and 6-year-old children to be 57% and 89% in two areas with early and late histories of fluoridation of water respectively [12]. Al-Khateeb found low fluoridation of water was a significant cause of higher rates of caries in Jeddah schools compared with Mecca and Rabagh schools [6].

The rate of dental caries was found to be higher among female children in both age groups and different social classes. This gender difference has not been documented in previous studies in Saudi Arabia, but has been noted in American studies and in a recent survey in the Islamic Republic of Iran [13,14]. Greater exposure of males than females in Saudi Arabia to health services is a possible explanation for this difference [15]. Another explanation could be interobserver variation among male and female dentists who visited the schools, as visits to each school were limited to dentists of the same sex as the students.

Social class difference showed an important association with the prevalence of dental caries in Jeddah. Many studies have documented the effects of social class, including higher levels of family education, higher awareness of dental health matters and greater use of dental health services [6,13,16].

Conclusion

This survey study documents an alarmingly high rate of dental caries among schoolchildren in Jeddah, with greater prevalence among younger children, females and those of lower social class. Although results from the study should be interpreted with caution as simple survey diagnostic methods were used, the findings can form a basis for planning dental health programmes for this age group. Such school surveys can measure the effects of dental health education campaigns in reducing dental mortality and enhancing preventive measures in dental care, including sound oral hygiene and diet modification in these young and easily targeted schoolchildren.

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