PREVALENCE OF DENTAL CARIES AMONG PRIMARY SCHOOL CHILDREN IN BASRAH

Samira M. Ebrahim*, Omran S. Habib**

ABSTRACT

This paper reports the results of a survey carried out in 27 primary schools covering 1580 children randomly drawn from these schools. The aim was to determine the prevalence rate of dental carries among these children. On the basis of examination, children were classified into those with dental carries (regardless of the number of teeth involved) and those without dental caries. The prevalence rate was 41.2% with significantly higher rate among boys (44.9%) as compared to girls (37.6%). The prevalence rate tended to decrease with increasing age and was much related to the lack of dental hygiene as indicated by the habit of tooth brushing.

INTRODUCTION

The school age is regarded as the most important phase of childhood life during which the child enters the society training system and emerges as a contributing member of the community. If the child doesn't maintain adequate health , the benefits of education will be lost because of absenteeism or lack of attention due to ill health. [1] School plays a very important role in health education and promotion at the crucial stage of childhood and adolescence. It develops personal character, skills, attitude, and physique, in addition to imparting knowledge. Parents, teachers, administrators, students and health professionals must be informed to develop core values, visions , goals and activities, and to provide new direction for health education and promotion of optimal school learning and school health.[2] Increasingly, schools are used as health access site for students to receive increased and improved access to care that they are not adequately receiving elsewhere.[3] School health services are defined as "The procedures used by physicians, dentists, nurses, teachers, etc, that are designed to appraise, protect, and promote optimum health of students and school personnel.''[4] through planned programmes. The overall objective of the school health programme is to ensure that every child is as healthy as possible so that he can obtain the full benefit from his education. [5] The importance of providing health services to students is widely recognized. Not only do school health services provide health care to students who otherwise might not have access to care, but because all children abilities to succeed academically and socially are linked to their physical and mental health. School provision of health services is related to the educational mission of school. [6] In practical life, an educated person is likely to behave in a much better way to care for health and a healthy person is likely to have better academic performance. School health services are preventive services, health education, emergency care, referral and management of acute and chronic health condition. [7] There are number of core screening, diagnostic, treatment and health counseling services that every school should provide and most schools already do provide. These include management of medical emergencies, medication delivery, services for children with special health care needs, referral of common health problems ***(such as injury, asthma, behavioural and emotional difficulties)*** and health screening such as vision and hearing screening. [8] A programme with expanded health services may provide for example on site immunization, full health histories and physical examination or on site therapy for children with special mental health needs. Dental care is one important component of school health services as it was clearly stated in the Iraqi Public Health Law No.89 of 1981. Prevailing impressions, supported by some empirical evidence from previous studies, is that school health services in general and dental care in particular are failing to respond to the expected commitments. [9] This part of the study is an attempt to explore the extent of dental caries among primary school children in Basrah.

Samira M. Ebrahim MBChB., MSc, Directorate General of Basrah Health Services.
Omran S. Habib MBChB., MSc., PhD., Department of Community Medicine, College of Medicine, University of Basrah, Iraq.

METHODOLOGY

This paper is part of a comprehensive school-based study carried out in Basrah governorate on environmental, health and academic performance of primary schools and primary school children. The details of the methodology used can be found elsewhere. [10] In brief, 27 primary schools were randomly drawn from a list of all primary schools in Basrah governorate. Then from each school 60 children were randomly selected from the first, third and sixth classes and were fully interviewed and examined. The dental examination was made by one of the investigators after adequate training by dentists. The final sample covered 1580 children.

RESULTS

Prevalence rate of dental caries by sex:

(Table-1) shows, that females had lower prevalence rate of dental caries 301 (37.6%) than males 350(44.9%). The difference between the two groups with respect to prevalence of dental caries was statistically significant (P< 0.005).

Table 1. Prevalence (%) of dental caries by sex.

Sex	No. examined	Prevalence (%)
Males	779	350(44.9%)
Females	801	301(37.6%)
Total	1580	651(41.2%)

X^2: 8.810 df:1 P:0.003

Prevalence rate of dental caries by age:

Table-2 shows, that older children had lower prevalence rate of dental caries as compared to younger children. Of children aged 11 years and over, 23.7% had dental caries compared to 47.3% and 52.6% of those aged 6-7 and 8-10 years in that order. The difference was statistically significant (P< 0.005).

Table 2. Prevalence (%) of Dental caries by age.

Age	No. examined	Prevalence (%)
6-7	528	250(47.3%)
8-10	525	276(52.6%)
11+	527	125(23.7%)
Total	1580	651(41.2%)

X^2:102.736 df:2 P:0.00

Prevalence rate of dental caries and practice of tooth brushing:

Table-3 shows, that nearly 42.0% of study children used to brush their teeth regularly and 58.0% did not report to do so. The prevalence rate of Dental caries was greater among those who did not brush their teeth (49.1%) as compared to the prevalence rate among those who brushed their teeth (30.3%). The difference was statistically significant (P<0.001).

Table 3. Prevalence (%) of Dental caries by practice of tooth brushing.

Tooth brushing	No. in the sample	Dental caries (%)
Practiced	663	201(30.3%)
Not practiced	917	450(49.1%)
Total	1580	651(41.2%)

X^2:55.878 df:1 P:0.00

DISCUSSION

The over all prevalence rate of dental caries in this study was (41.2%) which was similar to what had been reported by (Maatouk-F, et al) in their study on 600 school children aged 6 years and 12 years in Kairouan, Tunisia. where the prevalence of dental caries was (42.9%). [11] Much higher rates were reported by (Al-Sharbati-MM, et al). (61.9%) when they studied 389 boys and 373 girls selected randomly from 11 public primary schools in Benghazi, Libya.[12] Further higher prevalence rate (83%) of dental caries was reported in Jeddah, Saudi Arabia. when 82250 children in the first and fourth grades were screened for dental caries. [13] Also in Riyadh a study was carried out to determine the caries prevalence and severity in primary school children, and to assess the oral health knowledge, attitude and practices of their teachers. The prevalence rate was reported to be as high as (94.4%), and the teacher's knowledge regarding oral health was satisfactory and their attitude towards oral health was very positive. [14] In a cross sectional study done in Southern Thailand on 6 and 12 year old children, a total of 1156 children of grade 1(6years) and 1116 children of grade 6(12years) were studied. It was found that at age 6, (96.3%) of children had dental caries while 70% of those age 12 had dental caries. [15] In Morogoro municipality, Tanzania, a cross sectional study was done in

the year 2001 on the oral health status among eight to 15 years old primary school children, a total of 1297 children in 5 primary schools randomly selected from a list of 36 primary schools of Morogoro were examined for oral health status, twenty four percent of children were reported to have dental caries, which was much lower than what was found in this study. [16] In Haryana, India .The prevalence of dental caries in children age 6years was (38.2%). [17] This was lower than what was found in this study also (47.3%). While in Al Kairouan, Tunisia, the prevalence of dental caries among 6 years old school children was (52%), and in Tanzania it was (96.3%).With respect to the prevalence of dental caries with age, there was a decline in the trend of prevalence of dental caries among older children than in the small children in all the above studies. This trend was also found in the present study. The possible explanation for the decreased prevalence rate in older children may be related to better oral hygiene. In this study it was found that the prevalence of dental caries among females was significantly lower than males, a result which contrast with what was found in Jeddah and in Haryana (India), and is also different from the results found in Al Kairouan and Benghazi studies [11,13,17] where no statistical significant differences were found in dental caries between males and females. The prevalence of tooth brushing practice in this study was reported at (41.9%) which, was slightly lower than what was found in Al Kairouan (47.3%) and Benghazi (57.9%), but much higher than the results of Haryana (India) where only (3%) of children clean their teeth once a day with tooth brush and tooth paste. [17] There are three factors (the epidemiological triad) which play a role in the development of dental caries :the host (genetic predisposition, malnutrition during tooth formation and behaviour, such as dietary habits and oral hygiene practice); the agent (mainly streptococcus mutants);and finally the environment (lack of fluoride in water, lack of vitamin D and high consumption of refined sugars). [18] These factors interact to produce a variety of dental diseases at varying rates and intensities. The factors contributing to these variations could be cultural, genetic, geographic and or environmental in nature. Caries can be controlled by different measures but can never be truly prevented. However, accepting the fact that most of the causes of dental caries are preventable, it is much cheaper to prevent rather than to treat such a problem. Dental caries has a world wide distribution, regardless of sex, age, race and socioeconomic level. [12] Variation in the reported prevalence rates of dental caries a cross different countries and communities may be explained in terms of the above mentioned epidemiological, social, cultural and genetic factors which in turn affect hygiene, nutrition and health behaviour of children. Actually it is possible to estimate the cost of treating school children with dental caries across Basrah governorate. Accepting the prevalence rate reported in this study and assuming that 75% of cases are treatable and each case cost 5 dollars, then it is possible to make the following calculations.

Total school children in Basrah at one time point in 2004 = 255 000
Total children with dental caries = 105060
Total treatable cases (75% of total cases) = 78795

Total cost (cases x cost of one case) = 393975 Dollars or = 575 203 500 Iraqi Dinars

This is a big cost given the fact that normal preventive measures are part of the normal expected behaviour and is probably of much lower cost.

REFERENCES

1. Ebrahim GL. Practical mother and child health in developing countries. Hong Kong. Published with the support of the Catholic Funds for overseas Development 1980: 97-100
2. Lee A, Tang KK, Lee SH. Youth health promoting schools; What should be the aims? Asia-Pac-J-Public-Health. 2000; 12:S55-7. Medline.
3. Kaplan DW, Brindis D, Phibbis SL, et al. eds. A comparison study of an elementary school-based health center: effects on health care access use. Arch-Pediat-Med.1999; 153:235-243.Midline
4. Hagg JH. School Health Program-revised edition-Calcuth, Bomby-Delhi.Oxford and IBH Publishing Company 1986.
5. Lucas AO, Gilles HM. A short text book of preventive medicine for the tropics.Second edition: London, Sydne, Aucland, Toranto. HODDER and STOGGHION 1987; 268-270.
6. Anonymous. Results from School Health Policies and Programmes study 2000, Journal of school health 9/01/2001. Internet: http://WWW.Premium. Search.Yahoo.Com/search/Premium.
7. Anonymous. What are school health services? Internet: http://WWW. School health services./ htm.

8. American academy of pediatrics. Committee on school health. School Health Center and other Intergrated School Health Services (0030). Pediatrics2001; 107:198-201. Medline.

9. Klein JD, Slap GB, Elster AB, Schonborg SK. Access to health care for adolescent. A Positive paper to the Society and Adolescent Medicine. Journal of Adolescent health 1992; 13:162-170.

10. Ebrahim SM. School health services in Basrah: Performance indicators and avenues for improvement. Ph.D. Thesis, University of Basrah 2005.

11. Maatouk F, Ameur A, Ghedira H, et al.eds. School oral health survey in Kairouan, Tunisia. East Mediterranean Health Journal 1998; 4(1):137-141.

12. Al-Sharbati MM, Meidan TM, Sudani O. Oral health practices and dental caries among Libyan pupils, Benghazi (1993-94). Eastern Mediterranean health Journal.2000; 6: 997-1004.

13. Garden MB, Millaat WA. Dental caries among school children: Report of health education campaign in Jeddah, Saudi Arabia. Eastern Mediterranean Health Journal 2000; 6: 396-401.

14. Wyne A H,Al-Ghorabi BM, Al-Asiri YA, et al. eds. Caries prevalence in Saudi primary schoolchildren of Riyadh and their teachers oral health knowledge, attitude and practices. Saudi Medical Journal.2002; 23(1):77- 81.

15. Petersen PE, Hoerup N, Poomviset N, et al. eds. Oral health status and oral health behaviour of urban and rural schoolchildren in southern Thailand.Int- Dent-J.2001; 51(2):95-102. Midline.

16. Kikwilu EN,. Mandari GJ. Dental caries and periodontal conditions among primary school children in Morogoro municipality, Tanzania. East-Afr-Med-J. 2001; 78(3):152-156. Midline.

17. Tewari S. Caries experience in 3-7 years old children in Haryana (India). J-Indian-Soc-Pedod-Pre-Dent. 2001; 19(2):52-56. Midline

18. Levison H. Textbook of dental nurses, 6th ed. United Kingdom. Blackwell Scientific Publication 1989: 150-159.