

Caries Experience Among 6-12 Years Old Children Attended to Ajman University Dental Clinic During 2005-2006

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Abstract: High incidence of dental caries have been reported among several communities in different parts of the globe. It involves almost all levels of the society both in developed and developing countries. The aim of this study was to assess the caries incidence among those children aged 6-12 who were referred to Ajman dental school for routine treatment during 2005-2006. This epidemiological survey was carried out in 2005-2006 on children in pedodontics clinic of Ajman University. Dental health status of school children aged 6-12 were evaluated using the, DMFs index. In total 100 patients were selected in a sequential manner. Collected data were recorded in prepared forms and calculated through basic statistic. The overall mean DMFs was 10.3 from which the mean DMFS for female was 9.1 and male 11.2. High number of cases with dental caries in this UAE community indicate a clear need for appropriate plan on health education and prevention towards the WHO goals for 2010.

Key words: Dental caries, DMFs, DMFT, pedodontics, DMFs index, Iran

INTRODUCTION

Dental caries have long been advocated as an important part of problems involving individual's general and more specifically dental health. This is a chronic disease with a multi-factorial etiology and pathogenesis. The main cause of dental caries are dental plaque associated with bacteria including *Streptococcus Mutans* and *Lactobacillus* are considered the main cause of dental caries (Anusavice, 1998; Jett and Gilmore, 1990). To prevent the disease the cause should be eliminated and its currence being controlled. Preventive methods such as sealing the fissures have been proved to be efficient in preventing the plaque accumulation of plaque within the deep fissures therefore, prevent inaccessible fissure caries (Mandel, 1993).

A strong association has been illustrated between development of caries and poor oral hygiene. A review on 80,589 dental records revealed that proper oral hygiene, along with fluoride varnish application had been quite effective in preventing incipient dental caries (Dohnke-Hohrmann and Zimmer, 2004). Many epidemiological studies have demonstrated a dramatic decline in the prevalence of dental caries in children during the past three decades of developing countries. Around 10-15% of children experience half of all recorded caries while 25-30% of the sufferers experienced more

sever lesions (Marthaler, 1990, 2004; Marthaler *et al.*, 1996; Elderton, 1994). This inequality in oral health is mostly related to socio-economic and environmental factors as seen in early childhood (Willems *et al.*, 2005). It is believed that caries experience in primary teeth is directly correlated to that of permanent teeth (Leroy *et al.*, 2005; Li and Wang, 2002). A significant difference has been reported between boys and girls with boys having a higher dental caries incidence among primary dentition with a surprising opposite figure in permanent dentition (Hallett and O'Rourke, 2002; Maupome *et al.*, 2001).

Dental and oral diseases including caries are still a challenge to dental professions despite all technical progresses in clinical dentistry and with risen people's awareness on oral health and aesthetic (Al-Fano, 1979). The problem is more critical in young children due to lack of proper brushing, high carbohydrate consumption and most of poor patient's awareness. In addition, a large number of the parents do not distinguish first permanent molar teeth as permanent one. This will lead to a further lack of care and no treatment based on their belief as primary teeth needing no treatment. Dentists are strived to educate the young parents and their children for a good oral health care.

In many Arab countries, the rate of dental caries have been reported as high as the rate in industrialized countries due to their relatively high refined sugar

consumption (Cooke *et al.*, 2004; Watt and Sheiham, 1999; Ismail *et al.*, 1997). A recent study conducted in Libya shows lower values when compared to earlier reports with DMFT of 1.61 (Al-Sharbati *et al.*, 2000). This study was designed to evaluate the level of DMFs among a group of children aged 6-12 attended to Ajman Dental School during 2005-2006.

MATERIALS AND METHODS

Patients were selected from those attended to Ajman Dental School during the year 2005-2006 for routine dental visits. Cases of this investigation were selected in sequential sampling manner. A total of 100 cases were included in both sexes. A well defined oral examination was performed on dental chair under the dental unit light with an explorer and a mirror. All the cases had OPG, Periapical x-ray or bitewing has been taken depending on the cases for further diagnosis. Children's age ranged between 6-12 years. Samples were grouped according to their age: 6-8, 8-10, 10-12, ≤ 12 .

Each child's mother was then interviewed individually, following child's oral examination and data were recorded in the form's provided earlier. All children were examined for their dental caries using WHO criteria for the diagnosis of dental caries. The DMFs Score was then calculated in order to assess surface caries. Children were classified in several age groups along with their sex differences. Parents were also asked to fill in a form of their socio-economic status, nutritional habits, brushing, history of fluoride intake and Parent's education. DMFs score of 1-12 have been divided into subgroups of low (≤ 4), moderate (5-9) and severe (≥ 9). Collected data were analyzed using student t-test.

RESULTS

This study consisted of a group of 100 individuals (58 girls and 42 boys). The ethnicity of the attended patients was mixed from Arab, Indian to Persian origin. Majority of patients (77%) did not attend for their dental check up. This was mainly due to different reasons including financial difficulties (63%) and absence of pain (20.8%). However, 30% of the patients had attended for treatment of tooth pain. First and 2nd primary molars as well as 1st permanent molar teeth were the most frequent ones when children attended due to pain.

The frequency of caries in first primary molar was highest among 6-7 years old. Existence of pain in first permanent molars was at 13% which was seen mostly at the age of 12. When diet and drinks was analysed, coke and juice were more favorite to kids with only 11% of them

Table 1: Indicating the rate of filled, decayed surfaces and missing due to caries or periodontal disease to sex

DMFs/sex	Destroyed	Filled	Missing	DMFs
Female	445 (42.8%)	64 (6.15%)	59 (5.7%)	568 (54.7%)
Male	373 (35.9%)	38 (3.65%)	60 (5.8%)	471 (45.3%)
total	818 (78.7%)	102 (9.8%)	119 (11.5%)	1039(100%)

Table 2: The DMFs in different groups

DMFs/age	6-8	8-10	10-12	12 \geq	Total
Low	6 (6%)	5 (5%)	2 (2%)	4 (4%)	17 (17%)
Moderate	9 (9%)	6 (6%)	12 (12%)	2 (2%)	29 (29%)
Sever	17 (17%)	17 (17%)	15 (15%)	5 (5%)	54 (54%)
Total	32 (32%)	28 (28%)	29 (29%)	11 (11%)	100(100%)

Low: 1-4; Moderate: 4-8 Severe: 8->

taking plain water. The consumption of chocolate and chips between meals at school was very high with only 2% having fruits at this time. All the patients had chewing gum in their diet, 30% of whom had no idea about the type of chewing gums taken but 42% stated that they have chewing gum sugar contained.

Few number of the patients were brushed their teeth <3 times a day. About 40% of them, however used soft brushes with 36% of parents have had no preference to the brush type. All patients reported to have used fluoridated tooth paste. They did not have the knowledge of the other fluoride products only 2% of them reported an earlier use of fluoride supplement at school. Method of brushing was assessed with 45% brushing in the horizontal direction (bath technique) while 2% brush in circular manner. The rest stated to brush vertically. About 54% of the patients had severe level of DMFs (>9) mostly those age 6-9. The level of caries was 78.7% with 9.8% filled teeth and 11.5% missing due to caries (Table 1 and 2).

DISCUSSION

Increasingly incidence of dental caries among children is one of the major dental public health problems in many communities including U.A.E. Its high morbidity potential has brought this disease into the focus of dental health professionals. Dental pain is highly prevalent among children of different ages even in contemporary populations with historically low levels of caries experience. Dental pain is consistently associated with high levels of caries experience, the association being most apparent in lower socioeconomic groups with lower access to care (Maharani, 2009).

Results of this study has shown that experiencing pain was the second most frequent reason for those related to Ajman university dental clinic. As 63.3% of the cases stated that high dental cost is the reason not to seek treatment with low cost as the striving point for many to attend this Educational dental hospital center.

Among these patients the history of mild pain associated with caries was reported in most of the cases seen in this survey with a widely accepted lower importance of primary teeth. Among parents water fluoridation and fluoride containing products are believed to play a critical role in reducing dental caries.

Fluoride varnish has been shown to reduce the caries risk among those communities with low socio-economics status who are generally suffering from high caries rates. A group of 269 children in 6 German primary schools have been evaluated for differences of fluoride varnish and in office conventional fluoride application for 4 years. Results reported a significant lower caries increment in comparison to the control group (0.88 DMFT vs 1.39 DMFT, $p < 0.05$) (Zimmer *et al.*, 1999). Several regional preventive programs have been reported as being started for school children of U.A.E. since, 1995. Among those, the Sharjah state program is appeared to be the most consistent one. However, a major problem is insufficient knowledge of the population on prevention and early treatment which seems little to nil among general public.

In terms of fluoride supplement availability only 2 patients have reported to receive fluoride tablet through school program. The rest of patients are depending on other sources including fluoride tooth paste if any. The level of fluoride in bottled drinking water is also a major challenge as many companies supply different contents in their bottles while some residents may take their locally available water. A rapid change in the lifestyle of the society to an industrialized, style has produced new health problems. It is well documented that young children with poor eating habits are more likely to experience caries.

Primary teeth are shown to have a significantly greater chance of caries in children with good socio-economic status (Dye *et al.*, 2004). According to a USA based study, parents tend to feed their child with cariogenic foods as chocolate, chips and junk food at tea time especially at school (Welbury, 1997). Caries Indices for permanent and primary teeth of an Indian child population has been reported as 3.75 and 5.28. Education level of parents/carers had contributed the lower DMFT/dmft scores ($1.0 \pm 2.47 / 0.83 \pm 1.58$) in their children (Adewakun *et al.*, 2005).

A significant correlation is reported between socioeconomic status and caries incidence. In this regard a higher dmft index was associated with a low child development index, a high illiteracy rate and an un-fluoridated water supply (Peres *et al.*, 2003; Bajomo *et al.*, 2004). Conducted a study in group of south Africa children with their mean dmft (sd) being at 2.68

(3.29) in 6 years old and mean DMFT scores of 0.61(1.50) in 12 year olds. Yabao *et al.* (2005) has reported dmft of 4.12 and DMFT of 2.40 among philipino children aged 6-12 has stated dmft of 4.68 ± 3.21 and DMFT of 3.24 ± 2.72 among 6-12 years children of Sinaloa, Mexico. Al-Malik and Rehbin (2006) concluded that 96% of Saudi Arabia children were diagnosed with caries. The mean dmfs was 23.18 (+15.64).

Beltrán-Valladares *et al.* (2006) has reported that the overall caries prevalence of children in campeche, Mexico was $dmft > 0 = 53.1\%$ and $DMFT > 0 = 18.4\%$. The mean dmft and DMFT index were 1.78 ± 2.41 . Result of the current investigation revealed that the caries rate in this group of U.A.E children is quite high (10.3). From (9.1 in females and 11.2 in males).

CONCLUSION

There was a difference between boys and girls but this difference not significant ($p > 0.05$). The difference was not significant in different age groups. The overall mean DMFs was 10.3. From The females the mean DMFs was 9.1 and for males it had been 11.2.

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