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DENTAL CARRIES

FREQUENCY IN CHILDREN OF AGE 6 TO 12 IN DIFFERENT COMMUNITIES OF FAISALABAD.

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ABSTRACT… Dental disease is prevalent among young children, particularly those from lower socioeconomic populations; however, few preschool-aged children ever visit a dentist. Dental caries is a common childhood disease. **Objectives:** To observe the frequency of dental caries particularly focusing on effects of regular brushing habits with fluoride tooth paste on dental caries in children of different communities of Faisalabad. **Study Design:** Cross sectional study. Setting Four communities of Faisalabad located at: Punjab Medical College Colony, Youngwala, Agricultural University Colony, People Colony No.2. **Duration of study:** Six months from 01-07-2009 to 31-12-2009. **Subjects and Methods:** Total 379 patients were included in this study. Dental caries status was recorded after complete intraoral examination of selected children. Sample of drinking water was taken from each patient and fluoride level was measured in Laboratory. **Results:** Mean age of the children was observed 8.8±1.8 years. When socioeconomic status of studied population was considered majority i.e. 150 children (39.6%) was from higher socioeconomic class, 139 children (36.7%) were from middle class and 90 children (23.7%) from lower socioeconomic class. As for as sources of drinking water is concerned 132 children (34.9%) using ground water, 113 children (29.8%) canal water, 83 children (21.9%) filtered water and 51 children (13.4%) mineral water and level of fluoride in drinking water, (sources ground water, canal, filter water and mineral water is < 0.7 PPM which is suboptimal for caries protection). **Conclusions:** Regular brushing with fluoride containing tooth paste were very effective in preventing dental caries. Dental health services should focus primarily on the prevention of dental caries.

Key words: Dental caries, Fluoride, Oral health.

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INTRODUCTION

Dental caries is infectious disease afflicting most children in industrialized and developing counties[1]. Incidence of dental carries is 30% to 50% in children from different socio economic classes[2]. Caries risk development is multi factorials and assessment is difficult[3]. The risk factors include acid producing bacteria, fermentable carbohydrates, teeth mineral contents and oral hygiene[4]. Dental caries results in loss of tooth structure and discomfort. Caries can lead to bacterial infections, pulp necrosis, tooth extraction and loss of dental function and may progress to acute systemic infections[5].

Acid food debris and saliva combine in mouth and form plaque. The acid in plaque dissolves the enamel surface and create cavity. Bacteria begin to accumulate with in 20 min of eating. Fluoride works to control early dental caries in several ways. Its DENTAL CARRIES concentration in saliva inhibit demineralization of enamel and enhances re-mineralization and inhibit activity of cariogenic bacteria[6]. Recommended fluoride concentration in drinking water ranges from 0.7 to 1.2 part /million. Studies have demonstrated that reduction in childhood dental carries attributable to fluoridation approximately 50-60%[7]. Regular oral hygiene and dietary modification has a preventive role[8].

The average AMMT (Annual mean maximum temperature) of Pakistan is 29OC at which optimal level of fluoride in drinking water of Pakistan was 0.7PPM[9].

Dental caries is a complex process of interplay of different risk factors. Several studies world wide and in Pakistan has shown their correlation but no such study has been undertaken in our setup.

The rationale of study is to demonstrate the frequency

and relationship of various risk factors associated with dental caries in children of our society. This study will be helpful in demonstrating the disease burden and establishing the preventive strategies in our setup.

OBJECTIVE

Objective of the study was to

To observe the frequency of dental caries particularly focusing on effects of regular brushing habits with fluoride tooth paste on dental caries in children of different communities of Faisalabad.
Operational definitions

Dental caries

It is an infectious disease in which bacterial by products mainly acids dissolve the hard tooth surface.

Diagnosis of dental caries

Dental caries are seen as black plaque and cavitations on dental surface with the help of probe, mouth mirror, and light on intra oral examination.

Income in Rupees per month

It is divided in to following three classes:

1. Earning less than Rs.6,000 per month
2. Earning Rs.6,000 to15,000 per month
3. Earning more than Rs.15,000 per month

Brushing Habits Adequate brushing habit is at least twice a day and inadequate brushing habit is irregular brushing.

MATERIAL AND METHODS

Study design

Cross sectional study.

Setting

Four communities of Faisalabad located at: Punjab medical college colony, Youngwala, Agricultural University Colony, People Colony No.2.

Duration of study

Study was carried out over a period of six months from 01-07-20012 to 31-12-2012.

Sample size

Sample size was calculated by using who sample size calculator taking confidence level 95% population proportion 56%.6 absolute precision 5%. Sample size is=379.

SAMPLING TECHNIQUE

Consecutive sampling technique was used to select 95 children of dental caries from each community.

SAMPLE SELECTION

Inclusion Criteria

Children of 6 to 12 years of both sex belonging to different socio-economic class resident of different communities of Faisalabad with obvious signs of dental caries.

Exclusion Criteria

1. Mentally handicapped/ malnourished children as they have poor oral hygiene.
2. Children having different dental procedures like dental braces.
3. Any chronic illness like chronic renal failure which may act as confounding variable.

Data Collection Procedure

Children were selected by the inclusion criteria after explaining purpose, procedure, risk and benefits ratio, addressing ethical issues and taking informed written consent from the parents. Patients of different communities showing signs of dental caries were included. Exclusion criteria was strictly followed to control confounding variables. Patients included were thoroughly evaluated by taking detailed history including source of drinking water and any previous

dental procedure, intake of beverages and candies, use of fluorinated tooth paste. Designed proforma was filled. Dental caries status was recorded after complete intraoral examination of selected children. Sample of drinking water was taken from each patient and fluoride level was measured in Laboratory.

DATA ANALYSIS

Data were analyzed using SPSS version 10 data base program for health statistics. Mean and standard deviation for numerical variables i.e. Age. Frequency and percentages were presented for qualitative variables i.e. Gender, income class, intake of candies/beverages, fluoride in tooth paste and drinking water and cleaning habits.

RESULTS

The present study demonstrated frequency of dental caries in 6 to 12 years old children in different communities of Faisalabad, in my study outcome measures were age ,gender ,income class, intake of candies, brushing habits and fluoride in toothpaste and drinking water.

As far as ages were considered 165 children (43.5%) were of 6 to 8 years, and 122 children (32.2%) were of 9 to 10 year and 92 children (24.3%) were 11 to 12 years. Mean age of the children was observed 8.8±1.8 years (Table-I).

Age (year)	Number	%age
6-8	165	43.5
9-10	122	32.2
11-12	92	24.3
Total	379	100.0
Mean ± SD	8.8±1.8	

Table-I. Distribution of cases by age

There were considerable differences noted in all outcome measured. Total 379 children were included in this study, in which 211 (55.7%) were male and 168 (44.3%) were female (Table-II).

Out of 379 children 341 (90%) were studying in school while 38 children (10%) were not going to school (Table-III).

Sex	Number	%age
Male	211	55.7
Female	168	44.3
Total	379	100.0

Table-II. Distribution of cases by sex

When socioeconomic status of studied population was considered majority i.e. 150 children (39.6%) was from higher socioeconomic class, 139 children (36.7%) were from middle class and 90 children (23.7%) from lower socioeconomic class (Table-III).

Income / month (Rs)	Number	%age
< 6000	90	23.7
6000-15000	139	36.7
>15000	150	39.6
Total	379	100.0

Table-III: Distribution of cases by socioeconomic class

In this study total 331 (87.3%) were using candies. Out of these 331 children, 248 (75%) were taking more than 2 candies per day and 83 children (25.0%) taking 1-2 candies per day (Table-IV and V).

Use of candy	Number	%age
Yes	331	87.3
No	48	12.7
Total	379	100.0

Table-IV. Distribution of cases by use of candy

Although 100% children brush their teeth either regularly or irregularly. Out of hundred percent only 30% were regular in brushing twice a day. And 70% clean their teeth irregularly. Out of candy users i.e. 331 only 26 (7.9%) brush their teeth after intake of candy (Table-VI).

No. of candies / day	Number	%age
1-2	83	25.0
>3	248	75.0
Total	331	100.0

Table-V. Distribution of cases by number of candies used

Brushing	Number	%age
Adequate (twice a day)	114	30.0
Inadequate (regular)	265	70.0
Total	379	100.0

Table-VI. Distribution cases by brushing habits

Regarding question about fluoride containing tooth paste children using fluoride containing tooth paste 147 (38.8%) has less carries than those 232 (61.2%) who use ordinary tooth paste. There was 24% reduction in dental caries with use of fluorinated past (Table-VII).

Flourinated paste	Number	%age
Yes	147	38.8
No	232	61.2
Total	379	100.0

Table-VII. Distribution cases by fluorinated paste

As for as sources of drinking water is concerned 132 children (34.9%) using ground water, 113 children (29.8%) canal water, 83 children (21.9%) filtered water and 51 children (13.4%) mineral water and level of fluoride in drinking water, (sources ground water, canal, filter water and mineral water is < 0.7 PPM which is suboptimal for caries protection) (Table-VIII).

Source	Number	%age
Canal	113	29.8
Filtered	83	21.9
Mineral	51	13.4
Ground water	132	34.9
Total	379	100.0

Table-VIII. Distribution cases by source of drinking water

DISCUSSION

This study focused on the visual detection of caries, decalcifications were not considered as carious lesion in this study, which is early evidence that the disease process is active and may be remineralized by appropriate preventive measures. Similarly radiographs were also not used in this study which may have decreased the number of untreated proximal lesions undiagnosed.

It is well known that dental caries is a multifactoral disease that depends upon diet, microorganism, host defense, socioeconomic status and oral hygiene habits could be considered. In our study main focus is on affect of regular brushing habit with fluoride tooth paste on dental caries.

Results of present study were consistent in showing importance of regular brushing with fluoride containing toothpaste. As in our study, frequency of dental caries is low in those children who use fluorinated pas.

Our drinking water from all sources including ground water, canal water, filter and mineral water were not fortified with fluoride containing suboptimal level of fluoride which is also one of the contributory factor for dental caries and need to be supplemented with fluoride.

Study of Reisine and Psoter showed evidence between association of dental caries and tooth brushing that tooth brushing prevents dental caries[10].

The benefit of using fluoride to prevent caries have been known but complete understanding of this mechanism is still unknown. The present study also showed significant association of less caries and fluoride. Similar results were found by Malik et al[11].

Ledesma and Angel studied that preventive program using with help of fluoride had been affective and had a clear protective role. The prevalence of dental decay in UK has fallen significantly as a result of introduction of fluoridated tooth paste and fluoridation of water supply[12].

Griffin et al demonstrated effectiveness of fluoride in preventing caries, exposure to any mode of fluoride reduced caries by about 25%[13]. In another study also found preventive fraction of fluoride rinse 26% and tooth paste 24% close to 25%[14].

CONCLUSIONS

On the basis of our experiences on study we conclude that regular brushing with fluoride containing tooth paste were very effective in preventing dental caries. As there is 24 % reduction in dental caries with use of fluorinated paste, other factors like irregular brushing ,candy intake and suboptimal level of fluoride in drinking water also contributed in dental caries.

This study will be helpful in demonstrating the disease burden and establishing the preventive strategies in our set up.

However like any good study, it has raised further questions on the issue which should be addressed by larger study on effect of fluoride on other dental problems like dental flourosis, systemic use of fluoride versus topical use of fluoride. Our study could not address the levels of fluoride in tooth paste. This is an area which definitely requires further research.

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