Prevalence of dental health problems among school going children in rural Kerala.

JOSE Aa, JOSEPH M Rb

ABSTRACT

The purpose of this study was to know the prevalence and pattern of dental health problems in rural school children of Kerala and to identify the priority area for dental health education programmes. The children were examined and findings recorded, the findings show that more than 50% of the children in the 12 to 15 years of age group in rural Kerala suffers from some form of dental diseases. Males and females are equally affected and dental caries is the most common problem encountered.

Key Words - Caries, Gingivitis, Orthodontic problems, Prevalence of dental morbidity, Retained deciduous.

INTRODUCTION

Public Dental Health has been defined as “The science and art of preventing and controlling dental disease and promoting dental health through community effort” by the American Dental Association1. The unique characteristic of dental diseases is that they are universally prevalent and do not undergo remission or termination if untreated and require technically demanding expertise and time consuming professional treatment. According to G. Dale if deciduous teeth are retained beyond time of exfoliation, they are known to cause delay in eruption of permanent teeth and thus lead to malocclusion and other orthodontic problems, which will then need expensive corrective measures2. More than 400 species of bacteria live in human mouth. Dr. Robert Genco points out that serious gum infection can release bacteria in the blood stream and can worsen the condition of patient suffering from heart disease, stroke and other similar ailments3. It is also known that periodontal diseases can even cause premature labour by release of prostaglandins by periodontal bacteria and also worsen conditions like diabetes and pneumonia. In spite of the fact that the general health status indicators are good and people are literate, hardly any information is available on the dental morbidity pattern of adolescents in Kerala. It was therefore decided to do a school based study among 12 to 15 year olds in kolenchery. The aim was to find out the dental morbidity pattern of rural children in Kerala for planning community dental services. This age group was chosen because it is the time of adolescent growth spurt and orthodontic problems are most amenable to correction in this age group4. Also in a state like Kerala with very good attendance of adolescents we believed schools will be the best place to contact a large number of teenagers together. The information that we have gathered throws light on the current needs in dental care among adolescents. This also highlights the priority areas for health education in dental public health service.

MATERIALS AND METHOD

All the schools in Vadavucode Block where children between 12 to 15 years age group study were contacted by a letter describing the programme and asking to reply if willing to spare a day for dental check up. The Director of Schools was also informed of the project and requested to encourage the schools to make use of the facility. The first 10 schools that responded and were willing to spare a day were selected. A detailed schedule was drawn up for school visits and examination conducted accordingly. A volunteer was recruited and necessary training given to assist the dental surgeon with examination and record keeping. 1068 students were examined in a period of three months. Dental examination for 50 to 100 children, were carried out per day. All the children of the respective age groups were gathered and given introductory health talk. Methods of healthy toothbrushing, and general oral hygiene were taught to all. A small brochure on dental hygiene was given to all. The children were examined by a single examiner for dental caries, gingivitis, retained deciduous teeth, fractured teeth and orthodontic problems to avoid inter examiner variations. When multiple problems were present in the same person each was recorded separately. It is well known that many of these conditions co exist. For the purpose of this study following criteria for each condition were used.

Dental Caries

The teeth showing discoloration, chalky appearance of enamel, softened enamel or broken surface by visual examination or probing has been defined as caries tooth5.

Gingivitis

Bleeding from gum on visual examination or bleeding from sulcus on gentle probing and presence of deposits on teeth were diagnosed as gingivitis6.

Retained deciduous teeth
was retained beyond the time of exfoliation was diagnosed as retained deciduous teeth\(^7\).

**Fractured teeth**

Teeth with broken edges with no obvious evidence of caries were diagnosed as traumatic fractured teeth. This was confirmed by eliciting history of trauma after diagnosing fractured teeth\(^8\).

**Orthodontic problems**

Presence of all varieties of malocclusion due to any cause was diagnosed as orthodontic problem. Malocclusion is defined as any deviation from ideal occlusion\(^9\).

Each of the students was then given a report of the examination findings along with specific advice needed for the pathology detected. For any therapeutic procedure required they were advised to come to the Dental OPD on specific dates. For those requiring orthodontic correction which is time consuming a detailed schedule was planned and letters send to individual child's parents after collecting address from the school records.

**RESULTS**

490 male and 570 female children made up the study population (Table 1, Graph 1). Out of 1068 children examined, 580 (54.3\%) showed evidence of dental caries, of which only

<table>
<thead>
<tr>
<th>Age group</th>
<th>12 years</th>
<th>13 years</th>
<th>14 years</th>
<th>15 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>133</td>
<td>213</td>
<td>96</td>
<td>48</td>
<td>490</td>
</tr>
<tr>
<td>Female</td>
<td>167</td>
<td>333</td>
<td>30</td>
<td>48</td>
<td>578</td>
</tr>
</tbody>
</table>

Table 1: Showing the age and sex distribution of the children surveyed.

<table>
<thead>
<tr>
<th>Dental Condition</th>
<th>Total no. affected</th>
<th>%</th>
<th>Males</th>
<th>%</th>
<th>Females</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Caries</td>
<td>580</td>
<td>54.3</td>
<td>285</td>
<td>49</td>
<td>295</td>
<td>51</td>
</tr>
<tr>
<td>Fillings for Caries</td>
<td>34</td>
<td>3.18</td>
<td>22</td>
<td>65</td>
<td>12</td>
<td>35</td>
</tr>
<tr>
<td>Gingivitis</td>
<td>161</td>
<td>15</td>
<td>71</td>
<td>44</td>
<td>90</td>
<td>56</td>
</tr>
<tr>
<td>Retained deciduous teeth</td>
<td>82</td>
<td>7</td>
<td>40</td>
<td>48</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td>Fractured teeth</td>
<td>49</td>
<td>4</td>
<td>34</td>
<td>69</td>
<td>15</td>
<td>31</td>
</tr>
<tr>
<td>Orthodontic problems</td>
<td>224</td>
<td>20.9</td>
<td>122</td>
<td>54</td>
<td>102</td>
<td>46</td>
</tr>
<tr>
<td>Multiple problems</td>
<td>251</td>
<td>23.5</td>
<td>131</td>
<td>52</td>
<td>120</td>
<td>48</td>
</tr>
</tbody>
</table>

Table 2. Showing sex wise distribution of dental morbidities.
Prevalence of common dental health problems

Table 3: Showing the Commonest Dental Morbidity Conditions

<table>
<thead>
<tr>
<th>Disease Conditions</th>
<th>No. Suffering from each condition</th>
<th>Total no. examined</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Caries</td>
<td>560</td>
<td>1068</td>
<td>54.3%</td>
</tr>
<tr>
<td>Gingivitis</td>
<td>161</td>
<td>1068</td>
<td>15%</td>
</tr>
<tr>
<td>Retained deciduous teeth</td>
<td>82</td>
<td>1068</td>
<td>7%</td>
</tr>
<tr>
<td>Fractured teeth</td>
<td>49</td>
<td>1068</td>
<td>4%</td>
</tr>
<tr>
<td>Orthodontic problems</td>
<td>224</td>
<td>1068</td>
<td>20.9%</td>
</tr>
</tbody>
</table>

Graph 1: Age and sex distribution of the subjects examined.
34 (3.18%) received treatment. 224 (20.9%) showed evidence of orthodontic problems, 161 (15%) had gingivitis, 82 (7%) had over retained deciduous teeth and 49 (4%) had evidence of trauma to the anterior teeth. It was observed that the dental caries was most prevalent condition affecting the children. This was followed by orthodontic problems, gingivitis, retained deciduous teeth, restored teeth and fractured teeth (Table 2, 3 & Graph 2, 3).

**DISCUSSION**

Dental Caries is the commonest dental problem encountered. The prevalence observed in this study was 54.3%. As the age advances there was rise in proportion affected by caries. Both males and females were almost equally affected by caries with slightly higher prevalence among males. A study conducted by Sogi G in Davangare using DMFT/DMFS score reports higher prevalence in females that is statistically significant. Among 580 children having caries only 3.18% had dental fillings. In other words the proportion of children getting medical attention for caries is very minimum. It is interesting to note that among all those having caries more boys have dental filling than girls. 65% of those with fillings are boys. 20.95% of those examined had orthodontic problems. A Study conducted by Migalani et al reports 19.6% prevalence of orthodontic problems in Chennai among 12-15 year age group. However Jacob from Trivandrum reported 44.97% of orthodontic problems among 12-15 age groups. In our observation children of 13 and 14 years age group are the maximum affected. This is in line with the study conducted by Jacob from Trivandrum who reported 44.97% of orthodontic problems among 12-15 age groups. It is interesting to note that among all those having caries more boys have dental filling than girls. 65% of those with fillings are boys. 20.95% of those examined had orthodontic problems. A Study conducted by Migalani et al reports 19.6% prevalence of orthodontic problems in Chennai among 12-15 year age group. However Jacob from Trivandrum reported 44.97% of orthodontic problems among 12-15 age groups. In our observation children of 13 and 14 years age group are the maximum affected. This is in line with the study conducted by Jacob from Trivandrum who reported 44.97% of orthodontic problems among 12-15 age groups.
that orthodontic problems are higher among the males than females. Gingivitis shows an increasing trend as age advances. More females are affected by gingivitis particularly among 12 and 13 year old children. Sutcliff survey shows high prevalence among females. In our study also 56% of those affected are females. The study from Madhya Pradesh reports no significant difference in prevalence of gingivitis among males and females. Carranza report from US National sample surveys 1986 - 1987 among 12-17 year olds, that there is 58.8% prevalence of gingivitis. On the other hand fractured teeth are more common among males. This may be well explained by the more aggressive eating habits of the boys. Also chances of fights and falls are commoner among them which also contribute to fractured teeth. Finn also reports higher incidence of fractured teeth among boys. As age advances retained deciduous teeth become less but still 4.2% of the 15 year olds have retained deciduous teeth. This must be considered significant from a dental health and aesthetic point of view. It was observed that more than 50% of children in the 12-15 age group in rural Kerala suffers from some form of dental ill health. Dental Caries is the commonest problem. The prevalence of orthodontic problems and gingivitis are comparable to the observations made in other parts of the state and country. Males and females are equally affected with slight variations in the nature of problems among both genders.

1. Prevention and control of Dental Caries and orthodontic problems.

2. Early detection and corrections of Orthodontic problems.

REFERENCES


Reprint Requests to:
Marina Rajan Joseph
Department of Community Medicine,
M.O.S.C. Medical College,
Kolenchery.