Oral Health Status of the Welfare Hostel Students in Vikarabad Town, Andhra Pradesh, India

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Abstract

BACKGROUND: Oral health is an essential component of health throughout life. However, millions of children suffer from dental problems.

AIM: To evaluate the oral health status of welfare hostel students.

OBJECTIVES:
1. To assess the prevalence of dental caries among welfare hostel children
2. To assess the prevalence of dental fluorosis
3. To assess the prevalence of dental calculus among the study population

MATERIALS AND METHODS:
This cross-sectional study was conducted in welfare hostels of Vikarabad town, Rangareddy dist, Andhra Pradesh. The study population comprised of 501 welfare hostel children of age ranging from 8 to 17 years. Out of 501 subjects, 283 were boys and 218 were girls.

RESULTS:
26.15% of the boys and 15.14% of girls had poor oral hygiene. Prevalence of dental caries among boys was 34.28% and 31.65% among girls. Prevalence of moderate fluorosis among boys was 4.95% and 3.21% among girls.

Conclusion:
Prevalence of periodontal disease, dental caries and fluorosis is statistically significant in relation to age groups. A systemic implementation of preventive care and community oriented health programs are needed for the continuous promotion of oral health in welfare hostels.

Introduction

Good health is a fundamental goal for people and the society. Any nation can progress rapidly when its people are healthy and lead a productive life. Health is defined by WHO as a state of complete, physical, mental and social well being and not merely the absence of disease or infirmity. Oral health is now recognized as equally important in relation to general health. Sir William Osler stressed the significance of oral health as the mirror of general health and oral health plays a major role in improving the quality of life. The diseases of the oral cavity can spread to other body organs and systemic diseases can equally manifest in the oral cavity. People are not healthy without good oral health.

Children are a very important part of the country and the health of the children determines the future of the nation. In developing countries like India, the trends indicate an increasing oral health problems especially dental caries. In India the rural migration and urbanization bring about changes in life style and traditional dietary habits, which effect oral health adversely.

The need to monitor oral health is important in a developing country like India. Early detection of oral diseases is essential not only to alert the parents but also to bring down their prevalence and severity in our society.

This study was undertaken to assess the oral health status of the welfare hostel students in Vikarabad town (AP).

Objectives:
1. To assess the oral health status of welfare hostel children.
2. To assess the prevalence of dental caries among welfare hostel children.
3. To assess the prevalence of fluorosis among welfare hostel children.

Methods

A cross sectional study was conducted in year 2011 for a period of 2 months, among all 5 welfare hostels, in Vikarabad town located in Rangareddy dist, A. P, India. A total of 501 children aged 8-17 years were included in the study. Among them 218 children were girls and 283 were boys.

A pilot survey was conducted among 20 children to assess the feasibility of the study. Prior permission
was taken from the district welfare officer and hostel wardens.

Examination was carried out in the hostel building by the investigator, using plain mouth mirrors and explorers, under natural light with the child sitting in an upright position. Standard infection control protocol like autoclaving the instruments were followed. If on the spot sterilization was necessary, a potent disinfectant like Korsolex was used. Diagnosis was done by visual method. Examiners were calibrated prior to the start of the study, in the department of Public Health Dentistry, Sri Sai college of Dental Surgery, to record W.H.O oral health assessment form and OHI-S index.

Oral hygiene status was assessed using the Oral Hygiene Index- Simplified (OHI-S) . The oral hygiene of each child was classified as 'good' when the OHI-S score was 0–1.2, 'fair' when it was 1.3–3 and 'poor' when it was 3.1 - 6. Dental caries was recorded by standard criteria given by WHO in 1997. A tooth was considered decayed when there were definite carious cavitations on any surface of the tooth and dental fluorosis by using WHO dental fluorosis index.

**Data analysis**

1. Data obtained was tabulated and analyzed. Chi square test was used to compare the findings across age groups and gender.

**Results**

The total number of children in the survey were 501, of which 218 were girls and 283 were boys. The Oral hygiene status according to gender was that, 26.15% of the boys showed poor oral hygiene and so, 15.14% of the girls.

Similarly the association between the age and oral hygiene is described below in order of- 1.79% of children in 8-9 years , 6.98% in the age group of 10-11 years, 21.96% in the age group of 12-13 old, 33.59% in the age group of 14-15 years, and in the children above16 yrs 64.29% children showed poor oral hygiene.

Dental fluorosis was also assessed, its prevalence was very minimal. Only 4.9% of boys and 3.21% of girls showed moderate fluorosis.

Furthermore the relation between dental caries and the gender is such that, among the boys, 34.2% were having dental caries and in girls 31.65%. This showed that, both the genders were almost equally vulnerable to dental caries. If we need to compare the age group with dental caries, as the age increased, dental caries decreased where the 8-9 years old children being affected maximum amounting to 51.96%. Further details can be seen in table 6

**Discussion**

Children are a very important part of the country’s future resource and the health of the children determines the future of the nation. There is a need to monitor the oral health of the children, which is important in a developing country like India. Any nation can progress rapidly when its people are healthy and lead a productive life. Oral health is now recognized as equally important in relation to general health. People are not healthy without good oral health. Good health is a fundamental goal for people and the societies.

This study reported the oral health status of the children staying in all the 5 welfare hostels in the town of Vikarabad. This study was to identify the children or individuals who are at high risk of developing dental diseases.

In the present study 22.61% boys and 25.69% girls showed good oral hygiene so were the boys and girls in a similar kind of study done by Jain and et al3. The probable reasons for this may be that girls are more conscious about their looks and their oral hygiene. With the increase in age, the oral hygiene scores were poorer. 64.29% of the 16 and above age group were scored to have poor oral hygiene followed by 33.59% of the 14-15 years having poor oral hygiene. The 12-13 years old too had a sizeable number with 21.96% showing poor oral hygiene. In fact the trend should be that, as the age increased one should be more aware of his/her health in general and oral health in particular. But here, a reverse scenario is seen when oral hygiene is in question. This may be because, the younger ones in the welfare hostels are meek and obedient, the wardens and house leaders might’ve not taught them about toothbrushing., and it is possible that the older ones were having their say when it comes to oral hygiene by neglecting it. The adolescents at the pubertal age are a bit rebel by nature. Hence, they don’t listen to the house leaders or wardens. The hostel children were never ever taught about oral health, oral hygiene and dental caries by anyone here. Hence, this is one of the prime reasons for their negligence towards their oral health or oral hygiene. The study by Jain et al also hinted almost the same reasons.

Prevalence of dental caries in the study is 33.13%. In the boys the prevalence was 34.28% and in girls was 31.6%. In contrast, in a study by Grewal et al4, the
prevalence of dental caries overall was 77.5%. This kind of alarming prevalence of dental caries in the study by Grewal et al4 may be due to many a reasons which were not cited clearly in their article. Here in our study, we found out that, the food provided in the hostels was simple and frugal which is less cariogenic in nature. And there is a possibility that the drinking water maybe having permissible amount of fluoride though we have not analyzed the water. This is just a predictive statement because a small percentage of children did show dental fluorosis. A small percentage of children in the study conducted by K. M. Sudhir et al5 showed dental fluorosis too. There are many a possible reasons for having a small percentage of the welfare hostel children showing dental fluorosis like, children from economically poor families come to stay in these welfare hostels, we have not recorded their demographic details and the areas beneath the Anantgiri hills around Vikarabad show dental fluorosis. Thus, there is a need for promotion of community oral health programs to increase oral health awareness in toto among everyone and especially so in children and also record the dental fluorosis status.

Conclusion:

By correlating all the above findings, it was found that, oral hygiene was slightly good amongst girls and dental caries rate was slightly high in boys. Also, seen was moderate dental fluorosis. And these findings suggest us that, these welfare hostel children were neglected by the dental fraternity. The results of this study are proof to it.

Recommendations

1. Dental colleges should adopt the welfare hostels so that the deprived children are benefited.
2. The social welfare department should hire a dental surgeon whose duty is to take care of the oral health care needs of the poor hostel inmates.
3. And also, the education department should improve a reasonable amount of teaching material in the text books pertaining to oral health.

References

Illustrations

Illustration 1

Table 1: Oral hygiene status of study subjects according to gender

<table>
<thead>
<tr>
<th>Sex</th>
<th>Good</th>
<th>%</th>
<th>Fair</th>
<th>%</th>
<th>Poor</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>64</td>
<td>22.01</td>
<td>145</td>
<td>51.2</td>
<td>74</td>
<td>26.15</td>
<td>283</td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
<td>25.69</td>
<td>129</td>
<td>59.2</td>
<td>33</td>
<td>15.14</td>
<td>218</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>23.95</td>
<td>274</td>
<td>54.7</td>
<td>107</td>
<td>21.36</td>
<td>501</td>
</tr>
</tbody>
</table>

Chi-square = 8.8950  df=2  p = 0.0117, S

Illustration 2

Table 2: Oral hygiene status of the study subjects according to age using OHI-S

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Good</th>
<th>%</th>
<th>Fair</th>
<th>%</th>
<th>Poor</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9 years</td>
<td>15</td>
<td>26.79</td>
<td>40</td>
<td>71.4</td>
<td>1</td>
<td>1.79</td>
<td>56</td>
</tr>
<tr>
<td>10-11 years</td>
<td>23</td>
<td>26.74</td>
<td>57</td>
<td>66.3</td>
<td>6</td>
<td>6.98</td>
<td>86</td>
</tr>
<tr>
<td>12-13 years</td>
<td>50</td>
<td>23.36</td>
<td>117</td>
<td>54.7</td>
<td>47</td>
<td>21.96</td>
<td>214</td>
</tr>
<tr>
<td>14-15 years</td>
<td>30</td>
<td>22.90</td>
<td>57</td>
<td>43.5</td>
<td>44</td>
<td>33.59</td>
<td>131</td>
</tr>
<tr>
<td>16+ years</td>
<td>2</td>
<td>14.29</td>
<td>3</td>
<td>21.4</td>
<td>9</td>
<td>64.29</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>23.95</td>
<td>274</td>
<td>54.7</td>
<td>107</td>
<td>21.36</td>
<td>501</td>
</tr>
</tbody>
</table>

Chi-square = 51.5740  df=8  p = 0.0000, S
Illustration 3

Table 3: Prevalence of Fluorosis according to gender

<table>
<thead>
<tr>
<th>Sex</th>
<th>Normal %</th>
<th>Questionable %</th>
<th>Very mild %</th>
<th>Mild %</th>
<th>Moderate %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>68.2</td>
<td>4.</td>
<td>24</td>
<td>3</td>
<td>10.02</td>
<td>4.05</td>
</tr>
<tr>
<td>Female</td>
<td>73.8</td>
<td>3.</td>
<td>24</td>
<td>8.</td>
<td>3.10</td>
<td>2.18</td>
</tr>
<tr>
<td>Total</td>
<td>70.6</td>
<td>4.</td>
<td>24</td>
<td>8.</td>
<td>3.19</td>
<td>2.01</td>
</tr>
</tbody>
</table>

Chi-square: 3.3340  df: 4  p < 0.0536, NS

Illustration 4

Table 4: Prevalence of Fluorosis according to age groups

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Normal %</th>
<th>Questionable %</th>
<th>Very mild %</th>
<th>Mild %</th>
<th>Moderate %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-9 years</td>
<td>69.64</td>
<td>6</td>
<td>10.71</td>
<td>12.50</td>
<td>3.57</td>
<td>3.57</td>
</tr>
<tr>
<td>10-11 years</td>
<td>69.77</td>
<td>6</td>
<td>6.98</td>
<td>4.65</td>
<td>16.21</td>
<td>2.31</td>
</tr>
<tr>
<td>12-13 years</td>
<td>71.83</td>
<td>7</td>
<td>3.27</td>
<td>3.27</td>
<td>17.71</td>
<td>4.67</td>
</tr>
<tr>
<td>14-15 years</td>
<td>73.28</td>
<td>1</td>
<td>0.36</td>
<td>3.82</td>
<td>17.36</td>
<td>4.58</td>
</tr>
<tr>
<td>16+ years</td>
<td>50.00</td>
<td>3</td>
<td>21.43</td>
<td>0.00</td>
<td>21.43</td>
<td>7.14</td>
</tr>
<tr>
<td>Total</td>
<td>70.66</td>
<td>23</td>
<td>4.59</td>
<td>23</td>
<td>4.59</td>
<td>4.19</td>
</tr>
</tbody>
</table>

Chi-square: 37.0450  df: 16  p < 0.0026.
Illustration 5

Table 5: Prevalence of Dental Caries according to Gender

<table>
<thead>
<tr>
<th>Sex</th>
<th>Without caries</th>
<th>%</th>
<th>With caries</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>186</td>
<td>65.72</td>
<td>97</td>
<td>34.28</td>
<td>283</td>
</tr>
<tr>
<td>Female</td>
<td>149</td>
<td>68.35</td>
<td>69</td>
<td>31.65</td>
<td>218</td>
</tr>
<tr>
<td>Total</td>
<td>335</td>
<td>66.87</td>
<td>166</td>
<td>33.13</td>
<td>591</td>
</tr>
</tbody>
</table>

Chi-square = 0.3839, df = 1, p = 0.3361.

Illustration 6

Table 6: Prevalence of Dental Caries according to age

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Without caries</th>
<th>%</th>
<th>With caries</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9 years</td>
<td>27</td>
<td>48.21</td>
<td>29</td>
<td>51.79</td>
<td>56</td>
</tr>
<tr>
<td>10-11 years</td>
<td>47</td>
<td>54.65</td>
<td>39</td>
<td>45.35</td>
<td>86</td>
</tr>
<tr>
<td>12-13 years</td>
<td>158</td>
<td>73.33</td>
<td>56</td>
<td>26.67</td>
<td>214</td>
</tr>
<tr>
<td>14-15 years</td>
<td>95</td>
<td>72.52</td>
<td>38</td>
<td>27.48</td>
<td>131</td>
</tr>
<tr>
<td>16+ years</td>
<td>8</td>
<td>37.14</td>
<td>6</td>
<td>62.86</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>335</td>
<td>66.87</td>
<td>166</td>
<td>33.13</td>
<td>591</td>
</tr>
</tbody>
</table>

Chi-square = 21.7396, df = 4, p = 0.0002, 8.
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