Oral Health Awareness and Attitude among 12-13 Year Old School Children in Udaipur, India
Archana J. Sharda, Srinath Shetty, Dr. Ramesh N, Jagat Sharda, Nagesh Bhat, Kailash Asawa

Abstract
Background: Aim: The aim of the study was to assess the Oral health awareness (Knowledge) and Attitude among 12-13 year old school children in Udaipur City, India. Material and methods: In a cross-sectional study, a total of 514 children of 12-13 years old (306 (59.5%) Boys and 208 (40.5%) Girls) were surveyed using a self-administered, structured questionnaire written in English and pretested through a pilot survey to assess the oral health awareness and attitude. Descriptive statistics using frequency distribution, mean percentage scores and standard deviation were calculated. The Student’s t-test was used to assess the differences in mean scores by age and gender and chi-squared test was used as a test of significance for the proportions. Results: The mean percentage knowledge and Attitude scores were 46.826±14.361 and 81.08±23.063 respectively for all the children. There was no statistically significant difference for the mean percentage knowledge and attitude scores by age and gender. Conclusion: These results indicate a positive attitude but a low level of oral health awareness among 12-13 year old school children in Udaipur, India. The present study showed the need for the oral health education of the school children aiming at improving oral health knowledge and continuous implementation of school oral health promotion programs.

Key Words: oral health awareness; knowledge; attitude; school children

Introduction
Oral health is now recognized as equally important in relation to general health. Oral disease is one of the most costly diet- and lifestyle-related diseases.(1, 2) Oral disease can lead to pain and tooth loss, a condition that affects the appearance, quality of life, nutritional intake and consequently, the growth and development of children. The burden of oral disease is considerable. Tooth decay and gum disease are among the most widespread conditions in human populations, affecting over 80% of schoolchildren in some countries.(3-5) Many oral health problems are preventable and their early onset reversible. The traditional behavior change model states that imparting knowledge will enhance the attitude and health related behavior. But the precise nature of relationship between oral health awareness (knowledge), health related attitudes and behavior is complex. It it shown that people who have assimilated the knowledge and feel a sense of personal control over their oral health are more likely to adopt self-care behavior.(6) Also the oral health concern of an individual is dependent on the attitude of a person.(7)

Given that many risk behaviors stem from the school-age years, schools have powerful influences on children's development and well-being.(8-10) However, in several countries a considerable number of children, their parents and teachers have limited knowledge of the causes and prevention of oral disease.(11-14) Children can be provided with knowledge that enables them to make healthy choices, to adopt a healthy lifestyle and to deal with conflicts. Children are the ideal target group for an early intervention because healthy behaviours and lifestyles developed at a young age are more sustainable. So the present study, which is a part of a school based project to evaluate the effectiveness of oral health promotion programme, was aimed to assess the oral health awareness and attitude of 12-13 year old school children in Udaipur, India.

Materials and Methods
Subjects: In an epidemiological cross-sectional survey, 12-13 year old school children in Udaipur, India were examined to assess the dental caries prevalence. A simple random sampling was done to select three schools for the purpose of the study and the duration of study was three months.

Ethical Approval and Official Permission: Before starting the survey ethical approval was obtained from the ethical committee of PAHER University, Udaipur, Rajasthan, India and official permission was obtained from the authorities (Principal/Director) of the schools included in the study. Survey form: A survey form was prepared with help of a self-administered structured questionnaire written in English and validated through a pilot survey including 20 multiple choice questions to evaluate the oral health awareness (knowledge) and attitude of the 12-13 year old school children. The survey forma was divided into three sections as follows:
1) Demographic information: About Name, Age, Sex, Name and area of school and Year of study of the participants.
2) Oral health knowledge: The assessment of participant’s oral health knowledge included 16 questions (as per the order K1-K16) on the number
of sets of dentition, number of milk teeth, number of permanent teeth, purpose of tooth brushing, use of dental floss, meaning of plaque and it’s effect on dentition, meaning of gum bleeding and methods to prevent gum bleeding, effect of excess sweet consumption/sweet retention on teeth, effect of fluorides on teeth, methods of prevention of tooth decay, causes of oral cancer, importance of healthy food, effect of soft/fizzy drinks on teeth, impact of oral health on general health.

3) Oral health attitude: Four questions (as per the order A1-A4) on attitude towards regular dental visits, treatment of toothache, self-control over oral health and gutkha chewing/smoking habit.

Methodology: All the 12-13 year old children in the selected schools were invited to participate in the survey. The purpose of the study was informed and explained to the children. All the children available on the days of survey and who agreed to participate in the survey were asked to respond to each item according to the response format provided in the questionnaire. The response format included multiple choice questions in which the students were instructed to choose only one response from provided list of options. The students received a full explanation of how to fill in the questionnaire. Furthermore, the investigator was always available during the completion of the questionnaire and the participants were encouraged to approach the investigator for clarification of any queries.

The students who were asked to fill in the questionnaire without discussion with each other took an average of 20 min to complete the procedure. It was later checked by the investigator that none of the questions were left un-attempted. A total of 514 children of 12-13 years old participated in the survey, of which 306 (59.5%) were boys and 208 (40.5%) were girls. No attempt was made to pursue the children absent on the day of investigation.

Statistical analysis: For the purpose of analysis, each correct answer was given score ‘one’ and wrong and don’t know answers were given score ‘zero’ in the questions included in knowledge and attitude sections of the questionnaire. The data were analyzed using the spss version 11.5 software (SPSS Inc., Chicago, IL, USA). The individual scores were summed up to yield a total score. Descriptive statistics were obtained and mean percentage scores, standard deviation and frequency distribution were calculated. The Student’s t-test, was applied for the statistical evaluation of means and chi-squared test was used for comparisons of proportions. The P value was set at 0.05 as a significance level.

Results
A total of 514 children participated in the survey. The distribution of the study participants by age and gender is illustrated in Table 1. The mean percentage knowledge scores were 46.826±14.361 for all the children. No statistically significant difference was found between the mean percentage knowledge scores among the 12 year old and 13 year old children as well as among boys and girls. (Table 2) Among all the study participants the mean percentage attitude scores were 81.08±23.063 with no statistically significant difference between 12 year old and 13 year old children as well as among boys and girls.

More than 50% of the 12-13 year old school children did not give correct responses for the knowledge items regarding the number of sets of dentition, number of milk teeth, number, use of dental floss, meaning of plaque and it’s effect on dentition, meaning of gum bleeding and methods to prevent gum bleeding, effect of excess sweet consumption/sweet retention on teeth, effect of fluorides on teeth and methods of prevention of tooth decay. Whereas the knowledge items in which more than 50% of the respondents gave correct response were number of permanent teeth, purpose of cleaning (brushing) teeth, causes of oral cancer, importance of healthy food, effect of soft/fizzy drinks on teeth and impact of oral health on general health (Graph 1). The percentage of correct responses was more than 50% for all the attitude items among all.

![Table 1. Distribution of the sample population by age / gender.](image1)

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td></td>
<td>12yrs.</td>
<td>326</td>
<td>45.379</td>
<td>14.120</td>
</tr>
<tr>
<td></td>
<td>13yrs.</td>
<td>188</td>
<td>49.335</td>
<td>14.466</td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>306</td>
<td>47.120</td>
<td>14.798</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>208</td>
<td>46.394</td>
<td>13.715</td>
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<tr>
<td>Total</td>
<td></td>
<td>514</td>
<td>46.826</td>
<td>14.361</td>
</tr>
</tbody>
</table>

![Table 2. The mean percentage knowledge scores by age and gender among the study participants.](image2)

<table>
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<tr>
<th>Age</th>
<th>Sex</th>
<th>N</th>
<th>Mean</th>
<th>S. D.</th>
<th>S. E.</th>
<th>P</th>
</tr>
</thead>
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<tr>
<td></td>
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<td>326</td>
<td>81.13</td>
<td>22.970</td>
<td>1.272</td>
<td>0.966</td>
</tr>
<tr>
<td></td>
<td>13</td>
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<td>80.98</td>
<td>23.285</td>
<td>1.698</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>306</td>
<td>80.15</td>
<td>23.172</td>
<td>1.325</td>
<td>0.411</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>208</td>
<td>82.45</td>
<td>22.889</td>
<td>1.587</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>514</td>
<td>81.08</td>
<td>23.063</td>
<td>1.017</td>
<td></td>
</tr>
</tbody>
</table>

![Table 3. The mean percentage attitude scores by age and gender among the study participants.](image3)

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>N</th>
<th>Mean</th>
<th>S. D.</th>
<th>S. E.</th>
<th>P</th>
</tr>
</thead>
<tbody>
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<td>12</td>
<td>326</td>
<td>80.96</td>
<td>22.385</td>
<td>1.272</td>
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<td></td>
<td>13</td>
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<td>Girls</td>
<td>208</td>
<td>82.45</td>
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<tr>
<td>Total</td>
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<td>514</td>
<td>81.08</td>
<td>23.063</td>
<td>1.017</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

The intention of the study was to provide systematic information on the oral health awareness (knowledge) and attitude of the 12-13 year old school children in Udaipur, India, which would aid the planning and evaluation of the oral health promotion programme. The limitations of the present study include the lack of standard questionnaire for assessing the oral health awareness and attitude, and representativeness of the sample. The level of knowledge was quite low among the children in present study as, less than 50% of them gave correct responses for the knowledge items regarding the number of sets of dentition, number of milk teeth, number, use of dental floss, meaning of plaque and its effect on dentition, meaning of gum bleeding and methods to prevent gum bleeding, effect of excess sweet consumption/sweet retention on teeth, effect of fluorides on teeth and method of prevention of tooth decay. Though the level of knowledge among the 12-13 year old children was low, they showed a positive attitude towards oral health. The favourable attitudes observed in present study might be attributed to the more favourable socioeconomic factors.

The percentage of 12-13 year old children with the correct knowledge of number of deciduous teeth (36.6%) and number of permanent teeth we have (69.3%) was higher compared to that found among the school children (mean age 13.5 years) in North Jordan (2.7% and 54% respectively) in a study by Al-Omiri et al (2006). (15)

In present study, the percentage of children (34.2%) recognizing plaque as cause of tooth decay and gum disease was high compared to the Chinese children (8% - Urban and 5% Rural) in a study by Wong et al (16) and school children in North Jordan in a study by Al-Omri et al,(15) where 13% responded that plaque might cause gingivitis and 32% responded that it might lead to tooth decay.

The awareness among the children in present study about the effect of Fluoride on teeth (12.6%), effect of excess sweet eating or sweet retention (34.6%) and tooth brushing as method of preventing tooth decay (40.5%) was lower compared that among the school children (77%; 87% and 81% respectively) in a study by Al-Omri et al (15) and Chinese children (37% Urban and 16% Rural; 82% Urban and 61% Rural; and 81% Urban and 48% Rural respectively) in a study by Wong et al.(16) In present study, the percentage of children aware of regular tooth brushing and flossing as a method to prevent gum bleeding (48.1%) was higher compared the school children in North Jordan (40%) in a study by Al-Omri et al (15) and Chinese children (24% Urban and 14% Rural) in a study by Wong et al.(16) The awareness about the negative impact of soft drinks was low in present study than in the study by Al-Omri et al, (15) (67.7% Vs 77% respectively), whereas the awareness about the impact of oral health on general health was higher among present study than in the study by Al-Omri et al,(15) (61.1% Vs 54% respectively).

In agreement with the results of a previous study by Wong et al (16) present study also showed similar oral health awareness among boys and girls. The attitude scores were higher among boys than in girls (p<0.001) in a study by Wong et al (16) but there was no gender difference observed in the attitude scores in present study. This result was in contrast to the results of some previous studies by Ostberg et al (17) and Pellizer et al (18) where females showed higher oral health knowledge and attitudes than males. In sum, these results indicate a positive attitude but a low level of oral health awareness among 12-13 year old school children in India. In India, there no published studies in similar age group done with a comparable study instrument.

The individual and community health behavior might be the influence of a broad categories of factors like knowledge, beliefs, values, attitudes, skills, finances, materials, time and the influence of family members, friends, coworkers, opinion leaders and even health workers themselves.(19) As, school age is the right times when the behavior can still be molded, correct knowledge along with a positive attitude are essential to bring about a change in the oral health behaviour of the school children.

Conclusion

It may be concluded that the present study showed the need for the oral health education of the school children aiming at improving oral health knowledge and continuous implementation of oral health promotion programs.

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