

Comparison of Oral Hygiene Status and Knowledge before and after Health Education among School going Children

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ABSTRACT

Introduction: A healthy oral cavity aids a subject in performing their routine body functions, which in turn helps in providing adequate nutrition to the body. For the occurrence of periodontal pathologies and dental caries, one of the major risk factors is poor oral hygiene. The importance of oral hygiene cannot be detached from the general context of adolescence. Adolescence has the capability of independently attaining adequate oral hygiene but self-awareness is missing in adolescence.

Material and methods: The present cross-sectional study was conducted among 12 to 15 years old 199 school children of Lucknow semi-urban area using a self-structured questionnaire. List of schools in the periphery of Lucknow was searched and 8 schools were chosen using simple random technique (2 from every direction). Selected subjects were analyzed for basic oral health knowledge, attitude, and practices of oral hygiene using the self-structured questionnaire. The oral hygiene status was evaluated using simplified oral hygiene index (OHI-S). Oral prophylaxis was performed and oral health education was given to all the subjects, using a power point presentation, and tooth brushing model. All subjects were reassessed after 4 weeks. The values were compared.

Results: 199 students were present on both the day of examination. All the subjects were taken from 6th and 7th standard falling into the age range of 12 to 15 years. Significant improvement in OHI-S scores (before-2.62, After – 1.11) was observed in this study. Difference in the number of subjects giving correct answer at baseline and second visit was also significant showing improvement in their knowledge and practice of oral hygiene.

Conclusion: School based oral health education program is a cost effective strategy which can be implemented using very less infrastructure and personnel. This study also showed that oral health education program can improve the knowledge, attitude and practice regarding oral hygiene maintenance. Thus this kind of programs should be conducted regularly in schools.

Keywords: Oral Health Knowledge, Before and after, Oral Hygiene

INTRODUCTION

One of the complex issues involving humans is their health. It consists of both prevention of occurrence of diseases and maintenance of adequate health system. Data from the recent literature shows that there has been a steady increase in the capability for maintaining adequate health, along with preventing health related pathologies. Among the general health issue, oral health is an indispensable component. A

healthy oral cavity aids a subject in performing their routine body functions, which in turn helps in providing adequate nutrition to the body. In maintenance of oral health, oral hygiene and dietary factors together play a crucial and vital role.^{1,2}

For the occurrence of periodontal pathologies and dental caries, one of the major risk factors is poor oral hygiene. Prevalence of dental caries is found significantly higher in children due to lack of knowledge and in turn inability to maintain good oral hygiene practices. Results from the past studies have also reported a positive association between dietary factors and occurrence of dental caries.

Oral hygiene is also a good interpreter for periodontitis. Person who uses adequate oral hygiene practices for significant duration has insignificant signs of gingivitis and attachment loss.³⁻⁵

The importance of oral hygiene cannot be detached from the general context of adolescence. Adolescence has the capability of independently attaining adequate oral hygiene but self-awareness is missing in adolescence. Hence, these outcomes require more attention and health education. Adolescence is a critical period of transition with individual accountability for avoiding oral disease starting at this age and assessing future oral health.⁶⁻⁸ Under the light of above mentioned data this study was undertaken with the objective of assessment and comparison of oral hygiene status and knowledge regarding oral hygiene before and after health education among school going children.

MATERIAL AND METHODS

The present cross-sectional study was conducted among 12 to 15 years old school children of Lucknow semi-urban area using a self-structured questionnaire. List of schools in the periphery of Lucknow was searched and 8 schools

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were chosen using simple random technique (2 from every direction). While selecting schools, it was taken into consideration that no oral health activity is conducted in that school in last 2 years in the selected school, 30 students were taken as sample for the study thereby making a sample size of 240 subjects.

Selected subjects were explained the purpose of the study and instructed to respond to the questionnaire. Individual confidentiality of subjects was ensured so that they were free to fill the correct information. Language for Questionnaires was Hindi. Participants were analyzed for basic oral health knowledge, attitude, and practices of oral hygiene using the self-structured questionnaire. The oral hygiene status was evaluated using simplified oral hygiene index (OHI-S). Oral prophylaxis was performed and oral health education was given to all the subjects, using a power point presentation, and tooth brushing model. All subjects were reassessed after 4 weeks. The values were compared. At the end of individual school survey, oral health education lecture for all school children as well as for school teachers was taken to maintain oral hygiene to school children. Ethical approval for the study was taken from the institutional ethical committee of KGMU

Inclusion criteria

- School where no dental education activity in past 2 years.
- Cooperative students with 12 to 15 years of age,
- Subjects and their parents giving consent for the study.

Exclusion criteria

- Subjects with any systemic diseases
- Subjects with pain and oral lesions or ulcers
- Subjects with any prosthesis and orthodontic appliances.
- Subjects with any kind of disability in upper extremity.

	N	Oral Hygiene Index	P
Before	199	2.62 ± 0.95	0.005
After	199	1.11 ± 0.85	
Test Applied- Paired t test			

Table-1: Comparison of mean Oral Hygiene Index-Simplified score before and after oral health education program.

Question	Before		After	
	N	Percentage	N	Percentage
How do you clean your teeth?	194	97%	198	99.49%
What do you use to clean your teeth?	184	92.46%	197	98.99
Which method do you use to clean your teeth?	56	28.14%	111	55.77%
How many times do you clean your teeth?	86	43.21%	137	68.84%
Is there any relationship between cleaning of teeth and Oral diseases?	117	58.79%	149	74.87%
First sign of gum disease is?	67	33.66%	119	59.79%
May we lose our teeth at early age if there is gum disease for a long time?	90	45.22%	122	61.30%
Treatment of all gum diseases and tooth decay is possible by medicines only?	44	22.11%	73	36.68%
You should visit the dentist only when you have tooth pain otherwise no need to visit.	58	29.14%	132	66.33%
Use of fluoride can decrease the chances of tooth decay?	42	21.10%	111	55.77%
Tooth Decay is caused by sugary foodstuffs	164	82.41%	179	89.94%
Is there treatment available of tooth decay?	167	83.91%	192	96.48%

Table-2: Comparison of oral hygiene knowledge and practice scores before and after oral health education program.

Sample size for primary outcomes

$$\text{Sample size formula was } n = \frac{Z^2 \alpha / 2 p(1-p)}{e^2}$$

Where n is the estimated minimum sample size, α is the type I error, $Z_{\alpha/2} = 1.96$, p is the proportion of subject with fluorosis, 1-p is the proportion of subjects, e is the relative precision. It has been assumed that around 30% of students will improve their oral hygiene. Accepting type I error equal to 0.5 and precision equal to 3%, a sample size of 200 is calculated. Data was analysed using SPSS software 20.

RESULTS

There were total 240 students enrolled in the study from eight schools at base line. But on subsequent visit only 199 students were present on the day of examination. All the subjects were taken from 6th and 7th standard falling into the age range of 12 to 15 years.

Table 1 shows the improvement of oral hygiene status of subjects with difference between before and after score of mean OHI-S index being statistically significant.

Table 2 shows the knowledge and practice status of subjects before and after the oral hygiene education. 97% subjects already were using toothbrush and 92.46% were using tooth paste for cleaning their teeth, though in post health education visit it was found to be 99.49% and 98.99% respectively. Knowledge about sugary food causing tooth decay was also good (82.41%) among subjects even on first visit but still showed improvement in post oral health education visit (89.94%). The other questions regarding knowledge and practice showed significant improvement among subjects.

DISCUSSION

Primordial prevention is the primary prevention in true sense. If we can inculcate the good oral health habits in growing children, it will last forever. Moreover a budding child with correct and ample information is the best media to transfer knowledge to the future generation. That is why this study was planned to be conducted on school going children of 12-15years age.

The schools were selected from semi urban area of Lucknow because children of these schools are from poor background

and have negligible access to other oral health care services. Schools with no oral health education activity and broader age range were not taken as both could have acted as a confounding factor in the assessment of knowledge and practice of oral health care. At baseline examination, the OHI-S (2.62 ± 0.95) scores was found to be fair, reason being we selected schools where no oral health activity was conducted in last 2 years. At the second visit OHI-S score (1.11 ± 0.85) was found to be dropped significantly. Finding was similar to the finding of Sanadhya YK *et al*⁹, Ganesh AS *et al*¹⁰, Biesbrock AR *et al*¹¹, D'Cruz AM *et al*.¹²

The positive finding even at baseline was about the material used for cleaning teeth. 97% subjects already were using toothbrush and 92.46% were using tooth paste for cleaning their teeth therefore responses regarding these practice did not show noticeable improvement the reason behind might be awareness created through media now a days in our country. Practice of oral hygiene among subjects was improved i.e. acceptable technique of tooth brushing (from 28.14% to 76.88%) and number of subjects brushing their teeth twice or more from (43.71% to 68.84%). Improvement observed in these practices could have been influenced by social desirability bias also, which is inherent in subjective studies.

Knowledge regarding oral health and disease was also improved i.e. positive answers for relationship between cleaning of teeth and oral diseases (from 58.79% to 74.87%), first sign of gum diseases (from 33.66% to 59.79%), loss of teeth because of gum disease (from 45.22% to 61.30%) and role of fluoride in prevention of tooth decay (21.10% to 55.77%).

Knowledge regarding treatment was also improved i.e. when we should visit the dentist (from 29.14% to 66.33%), reason to visit dentist (from 29.14% to 66.33%) and treatment of tooth decay (from 83.91% to 96.48%)

There was significant improvement in the knowledge and practice of Oral hygiene. Which was similar to the study of Sanadhya YK *et al*⁹, Biesbrock AR *et al*¹¹, Sadana G *et al*¹⁵ and De Farias IA *et al*.¹³ There were few questions of knowledge like 'reason of tooth decay' and 'is there treatment available for tooth decay' result of which did not show any significant difference (82.41% to 89.94% and 83.91% to 96.48% respectively), because subjects already had a good knowledge about the same.

Oral health education among school children is quite effective for inculcating appropriate oral hygiene habits among them but this kind of programs should run in collaboration with school authority making the school teachers participate in the same for reinforcing the oral health education among school children. Reinforcement plays the major role in making the children continue to use the appropriate method for oral hygiene maintenance. Training of school teachers must be done for reinforcement of oral health education program.

CONCLUSION

School based oral health education program is a cost effective strategy which can be implemented using very less

infrastructure and personnel. This study also showed that oral health education program can improve the knowledge and practice regarding oral hygiene maintenance. Thus this kind of programs should be conducted regularly in schools in collaboration of school authorities.

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