

EVALUATION OF KNOWLEDGE SCORE OF DENTAL CARIES, ORAL HEALTH AND FREQUENCY OF CONSUMPTION OF CHOCOLATES, SWEETS AND SOFT DRINKS AMONG SCHOOL CHILDREN.

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Abstract

Aims & objectives: The aims of present study were to evaluate the knowledge score of dental caries, oral health among school children and also to know the consumption of chocolates, sweets and soft drinks by children in their routine life.

Materials & methods: The study was conducted in two schools of Mandi Gobindgarh. First school has 1-7 standards each with three sections. The second school of Mandi Gobindgarh has standards from 1st to 12th standards. Two institutions were selected in order to assess the knowledge of school children regarding dental caries in both schools and also to compare their knowledge. As the permission was granted from these schools study was conducted after the random selection.

Results: Results showed that 55% of respondents visited dental clinic and overall mean knowledge score among the respondents on dental caries found to be 57.04 percent with S.D as 16.0 percent. 38.7% never drink soft drinks and 53.7% drink occasionally. 61.2% of respondents take sweets and cake occasionally where as 3.8% take thrice a week. Only 2.5% of respondents never take chocolate but 40% of them take occasionally and 27.5% once in a week and 15% of them take twice and thrice a week respectively.

Conclusion: Majority of the respondents who visited dental clinic (55%), out of that 38.8 respondents (70.5%) visited due to toothache. The mean knowledge on prevention of dental caries was different among different age group under study and no difference was seen among males and females. Significant impact of medium of instruction on knowledge of children in prevention of dental caries was also reported in present study. English medium students' have higher knowledge score (70.24%) whereas students of Punjabi medium showed 43.83 % with the F value worked out to be 173.14 which indicated 5% level of significance.

Introduction

Oral health is a main division of overall health. As the oral cavity is the doorway for the human being body, any damage to oral health can be evident not only in the oral cavity but also in other parts of the body. As prevention is better than cure, preventive procedures are being executed within various divisions of society to maintain the good status of oral health.¹ It is a well-known fact that while a majority of dental diseases can be prevented by proper dental care, the lack of it can lead to major dental problems especially in children and ultimately it affect their proper growth and development. Dental caries is one of the most common chronic diseases that affect human beings at all ages. It is a principal problem in children and adolescents. Dental caries, if untreated results in total destruction of teeth.² Oral diseases present a major public health problem. About 90% of school children worldwide and most adults have experienced caries, with the disease being most prevalent in Asian and Latin American countries.³

Oral health education is believed to be a cost-effective method for promoting oral health if done through schools, where all school children irrespective of their socioeconomic status or ethnicity can be reached.⁴ To create such oral health education, the assessment

of knowledge and attitude is essential.⁵ Knowledge means that the individual has all data necessary to understand what oral disease is and how it arises, as well as to understand the protective measures that need to be adopted.

Evidence has showed that an increase in knowledge about risk factors for oral disease and strong knowledge of oral health demonstrates better oral care practices that aim to promote healthy habits.^{6,7} Moreover, school children with inadequate oral health knowledge are twice as likely to have caries as school children with adequate knowledge.⁴ Therefore, an effective preventive program is desirable for these school children. However, it is important to evaluate the current status of oral health knowledge before designing an effective prevention program.

Food is necessary for the proper growth and development of children. It is important for the support of oral and physical health, the enhancement of the powers of resistance and continued renewal of the substances in the cells and tissues in children.

According to the World Health Organization, the diet has an important role in the prevention of oral diseases, including dental caries, dental erosion, defects in development, diseases of the oral mucosa and periodontal diseases.⁸ Dental caries eventually leads

to tooth loss, which in turn impairs the chewing ability, causing avoidance of hard and fibrous foods, including fruits, vegetables and whole grains.⁸ An effective means of caries prevention is consumption of fluoridated water coupled with reduction in the intake of non-milk extrinsic sugar.⁹ The excessive intake of low-molecular carbohydrates constitutes a serious health issue, which has an unfavorable impact on the dental health status.¹⁰

So, the aim of present study was to evaluate the knowledge score of dental caries, oral health among school children and also to know the consumption of chocolates, sweets and soft drinks by children in their routine life.

Materials & methods

The study was conducted in two schools of Mandi Gobindgarh. First school has 1-7 standards each with three sections. The second school of Mandi Gobindgarh has standards from 1st to 12th standards. Two institutions were selected in order to assess the knowledge of school children regarding dental caries in both schools and also to compare their knowledge. As the permission was granted from these schools study was conducted after the random selection.

Population

A population is an aggregate (or) totality of all subjects that process a set of specification. The target population is the group of population that the researcher aim to study and to whom the study findings will be generalized. The target population of present study was the school children within the age group of 10 to 12 years

Sample and sampling technique

A sample is a portion of the population that has been selected to represent the population of the interest. Based on the selection criteria 80 subjects (40 from urban school, 40 from rural school) were considered as the samples for the study and selected by lottery method. Method of data collection

The technique used for collecting the information was structured interview method. Interview technique provides greater opportunity to prove and clarify questions and this results in nearly complete the data from all subjects, when subjects cannot read or respond to a questioner. The structured interview technique was preferred since the subjects were from both rural and urban school and also we felt that face to face contact would encourage the children to give free and frank information about their knowledge regarding prevention of dental carries. It allowed for uniformity in asking question and objectivity in recording the response.

A structured interview schedule was prepared.

The final format of structured interview schedule comprised of items describing sample characteristics such as age and sex of participants and frequency of consumption of chocolates, sweets and soft drinks Also It consisted of items to assess the knowledge of school children regarding dentition, structure of tooth, causes, signs and symptoms, treatment and prevention of dental caries. There are 30 questions, each carry one mark. The scores allotted for each statement as one mark for each correct and zero for each wrong answer. The minimum and maximum score found to be 0 and 30. For the purpose of the study, the knowledge scores are categorized in to

Poor - >50%

Average - 50%- 70%

Good - 70%-100%

Inclusion criteria

- The study includes the school children who were :
- Studying in 5th to 7th standard.

- Age group of 10 -12 yrs.
- Both boys and girls were selected
- Students were selected from urban and rural schools who were willing to participate in the study
- Available at the time of data collection

Exclusion criteria

- Less than 10 yrs and more than 12 yrs.
- Not studying in selected urban and rural schools of Mandi Gobindgarh
- Not willing to participate in the study

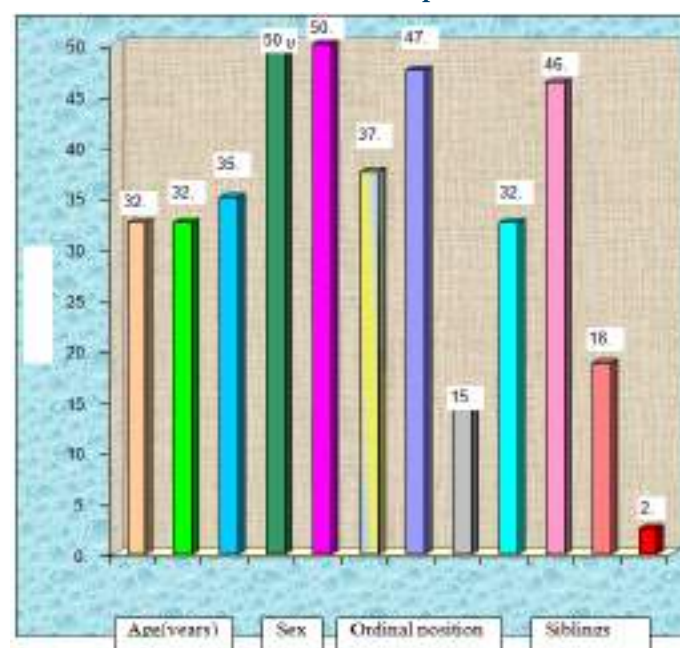
Results

The sample characteristics were described as follows.

Percentage and frequency distribution of sample characteristics

Characteristics	Category	Respondents	
		Number	Percent
Age	10years	26	32.5
	11years	26	32.5
	12years	28	35.0
Sex	Male	40	50.0
	Female	40	50.0
Ordinal position	First	30	37.5
	Second	38	47.5
	Third	12	15.0
Siblings	No	26	32.5
	One	37	46.3
	Two	15	18.7
	Three	2	2.5
Medium of Instruction	English	40	50.0
	Punjabi	40	50.0
Total		80	100

Table 1: Personal characteristics of Respondents



Graph - 1: Personal characteristics of Respondents

It is evident from the findings that higher percentage of (35%) of respondents belongs to 12 years of age followed by equal percentage (32.2%) of respondents noticed in the age group of 10 years and 11 years. Regarding sex, it is observed that equal number of respondents (50%) was taken for the study purpose. With respect to ordinal positions respondents majority (47.5%) found second ordinal position followed by first ordinal position (37.5%) and 15% as third ordinal position. Majority of the respondents (46.3%) with one siblings followed by 18.7% and 2.5% of respondents possess with two and three sibling respectively. Further 32.5% of respondents noticed with no siblings (Table 1, Graph1)

Aspects	Response	Respondents	
		Number	Percent
Ever visited dental clinic	Yes	44	55.0
	No	36	45.0
Purpose of visiting clinic	Toothache	31	38.8
	School checkup	26	32.5
	Extraction of teeth	5	6.3
Brother or sister having dental problems	Yes	16	20.0
	No	64	80.0
Done filling teeth	Yes	21	26.3
	No	56	73.7
Absent to school due to dental problems	Yes	4	5.0
	No	76	95.0

Table 2: Response on Dental problems and visit to dental clinic

Table – 2 shows 55% of respondents visited dental clinic, out of which 38.8% visited for toothache, and 32.5% underwent school checkup. 20% of the respondent's brother or sister had dental problems. Further, 26.3% undergone filling of their teeth. There are only 5% of the respondents absent to school due to dental problems.

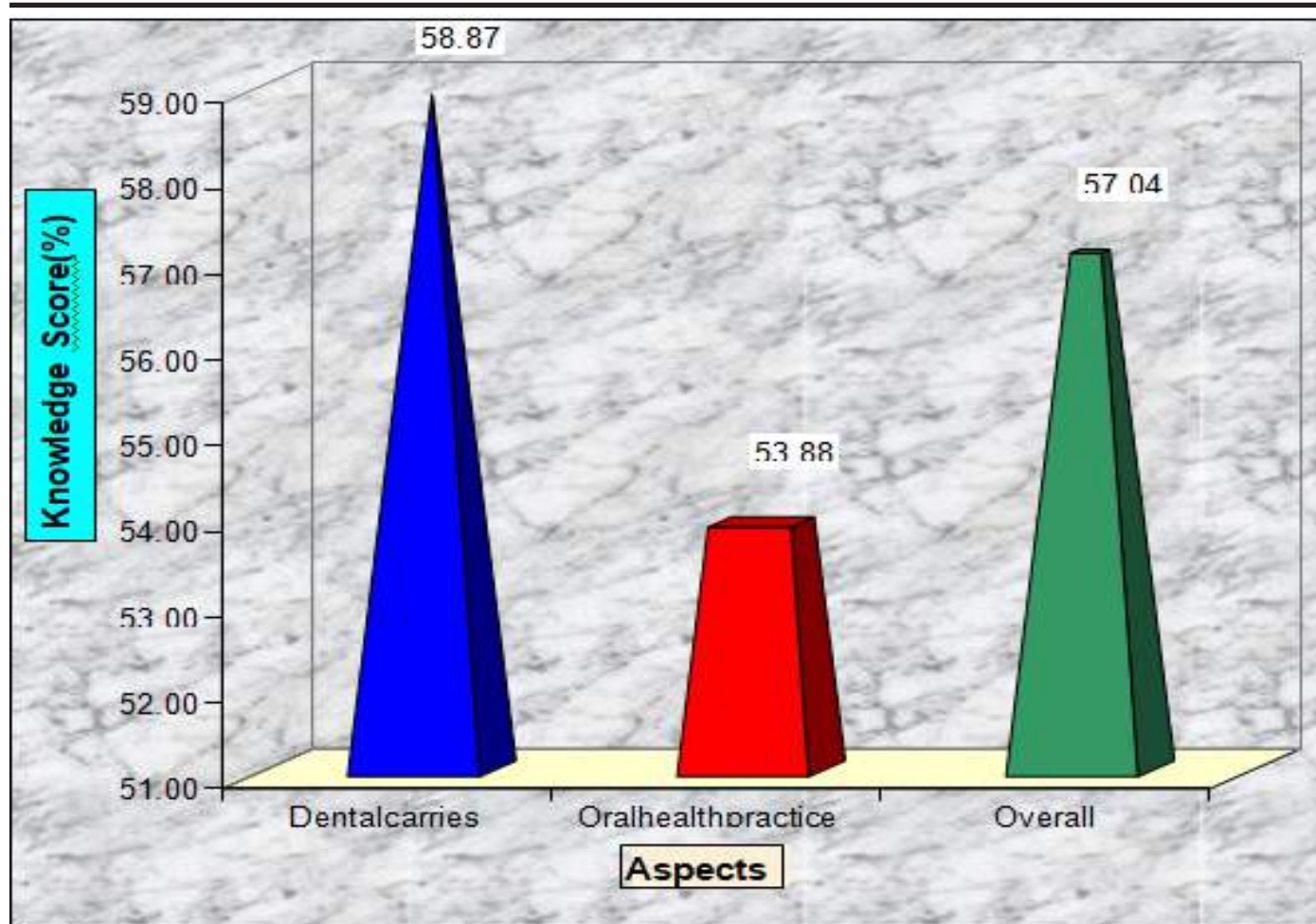
Frequency of Consumption	Soft Drinks		Eat Sweets & Cakes		Eat Chocolates	
	Number	Percent	Number	Percent	Number	Percent
Never	31	38.7	6	7.5	2	2.5
Occasionally	43	53.7	49	61.2	32	40.0
Once in a week	3	3.8	18	22.5	22	27.5
Twice in a week	3	3.8	4	5.0	12	15.0
Thrice in a week	0	0.0	3	3.8	12	15.0
Total	80	100	80	100	80	100

Table 3: Frequency of Consumption of Soft Drinks, Sweets & cakes and Chocolates

Table – 3 depicts the frequency of consumption of soft drinks, sweets and chocolates. 38.7% never drink soft drinks 53.7% drink occasionally. None of them drink soft drinks thrice in a week. 61.2% of respondents take sweets and cake occasionally where as 3.8% take thrice a week. Further analysis of consumption of chocolates only 2.5% of respondents never take but 40% of them take occasionally and 27.5% once in a week and 15% of them take twice and thrice a week respectively.

Aspects	Statements	Score Range	Knowledge Score		
			Mean	Mean (%)	SD (%)
Dental carries	19	6-17	11.18	58.87	15.5
Oral health Practice	11	3-10	5.93	53.88	20.8
Overall	30	10-26	17.151	57.04	16.0

Table 4: Response on Knowledge of Dental caries and Oral health Practice



Graph 2: Response on Knowledge of Dental caries and Oral health Practice

The data presented in table – 4 and graph 2 shows that the mean, mean percentage, standard deviation percentage, and range on knowledge of 80 school children regarding the knowledge of dental caries. It is evident from the findings that the overall mean knowledge score among the respondents on dental caries found to be 57.04 percent with S.D as 16.0 percent.

Sex	Sample (n)	Knowledge Score			F Value
		Mean	Mean (%)	SD (%)	
Male	40	16.85	56.16	14.9	0.24NS
Female	40	17.38	57.92	17.2	
Combined	80	17.11	57.04	16.0	

Table 5: Impact of Sex on Knowledge of children in prevention of dental caries

NS : Non-Significant

Table-5 shows the impact of sex on knowledge of children in prevention of dental caries.(figure 3) The analysis reveals that the mean knowledge of female respondents on prevention of dental caries found to be slightly higher (57.92 and S.D.17.2%) as compared to male respondents (56.16% and S.D 14.9%). The data subjected for statistical test indicate the difference in mean knowledge score in prevention of dental caries between sex found to be non significant.(F= 0.24 NS).

Age	Sample(n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
10years	26	17.35	51.82	17.1	3.35*
11years	26	15.31	57.02	14.2	
12years	28	18.57	61.90	15.3	
Combined	80	17.11	57.04	16.0	

*Significant at 5% level

Table 6: Impact of Age on Knowledge of children in prevention of dental caries

The impact of age on knowledge of children in prevention of dental caries is indicated in table.6. The mean knowledge on the aspect found with 51.82 percent among 10 years of age, 57.02% among 11 years of age and (61.90%) found in 12 years of age. The statistical test ($F= 3.35$) establishes that the difference to the mean knowledge on prevention of dental caries among different age group under study found to be significant at 5% level. ($P<0.05$)

Medium of Instruction	Sample(n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
English	40	21.07	70.24	10.5	
Punjabi	40	13.15	43.83	7.1	
Combined	80	17.11	57.04	16.0	

*Significant at 5% Level

Table No.7 Impact of Medium of Instruction on Knowledge of children in prevention of dental caries

Table 7 depicts the impact of medium of instruction on knowledge of children in prevention of dental caries, the result depicts that English medium students' knowledge found higher (70.24%) whereas students of Punjabi medium shows 43.83 % with the F value worked out to be 173.14 which indicates 5% level of significance. Further there exists a significant association between the mediums of instruction on knowledge of children in prevention of dental caries

Discussion

Dental caries is infectious and preventable disease. School based preventive programme is very essential to prevent this problem. Health educational module can improve the knowledge and practice of school children to prevent dental caries. Hence the present study was undertaken to assess the knowledge of school children regarding prevention of dental caries in selected schools i.e., school of Mandi Gobindgarh with a view to develop health education module.

Present study reported that 55% of respondents visited dental clinic, out of which 38.8% visited for toothache, and 32.5% underwent school checkup. 20% of the respondent's brother or sister had dental problems. Further, 26.3% undergone filling of their teeth. There are only 5% of the respondents absent to school due to dental problems (table 2)

Mohammed S Al Darwish et¹¹ observed in their study that the majority of the children, 687 (32.5%), visited their dentist only when they had dental pain. This attitude could be explained in terms of fear due to previous negative dental visit experience or negligence of parents. These results are in agreement with the reports by the WHO¹² and Cheah et al.¹³ Approximately a quarter of the children, 537 (25.4%), had a regular visit every six months. This could be due to the low awareness of importance of routine dental visits for dental check-ups. Studies conducted for children in India and China where 71.6% and 73.6% respectively had a regular dental visit every six months.^{11,14} Muhanad Alhareky and Muhammad Ashraf Nazir reported that Most children (64.1%) visited the dentist during the past one year, 22.1% performed no dental visit during the past one year, and 8.3% never visited the dentist. Among children who visited the dentist, the pain was the most common reason for dental visits (39.10%, N=170), followed by routine dental check-ups (18.60%, N=81).¹⁵ About 99.43% of children knew that maintenance of healthy mouth is each individual responsibility. Around 46.86% of children had visited the dentist, and 53.14% of children hadn't visited the dentist before. It was noted that 22.29% of children visited dentist for decay reason, 9.71% for reason of pain, 3.29% constituted for filling, and 2.71% for extraction.¹⁶

In the everyday diet of most children there were many risk foods of

the 'junk food' type: chocolate, sweets, snickers, potato crisps, corn sticks. Such foods are appealing and have a pleasant taste (mostly sweet); they are packed in colourful shiny packages in the form of sticks, chocolate bars or sweet drinks in boxes. Their high sugar content causes a major concern as it tremendously raises the risk of caries. Other foods such as corn sticks, corn snacks, popcorn, crisps, French fries are very tasty and have an appealing aroma and colour. A worrying trend of frequent consumption of non-alcoholic fizzy drinks was found in 2/3 of the children. Due to the high sugar content, this creates a high risk of caries development. Energy drinks are a favourite amongst some children, who consume them regularly.

Table – 3 depicted the frequency of consumption of soft drinks, sweets and chocolates. 38.7% never drink soft drinks 53.7% drink occasionally. None of them drink soft drinks thrice in a week. 61.2% of respondents take sweets and cake occasionally where as 3.8% take thrice a week. Analysis of consumption of chocolates showed that only 2.5% of respondents never take but 40% of them take occasionally and 27.5% once in a week and 15% of them take twice and thrice a week respectively. Another study showed that 34% children have chocolates two to four times a week, 6 % once a week, 36% once a day and 24% take more than once a day.¹⁷ So present study reported less chocolate consumption as compared to this study. Doichinova L et al¹⁷ also reported higher intake of sweets and soft drinks by children as compared to our study.

The findings of the study revealed that the mean knowledge of school children {57.4%} regarding dental caries and oral health practices found to be inadequate to prevent dental caries.

It is evident from the findings that the overall mean knowledge score among the respondents on dental caries found to be 58.87% and knowledge score for oral health practices was 53.87% (Table 4). Rajab¹⁸ conducted a study to assess the level of knowledge and attitudes of children and parents. 49 % of the children had tooth extraction and 8 % had preventive services. Tooth brushing at least twice a day was reported for 31% of the children. Mohammed S Al Darwish et¹¹ found that Only 25.8% of children reported a high level of oral health knowledge. A large number of children (32.5%) thought incorrectly that one must visit the dentist only in case of pain. Less than half 38.9% of children actually had heard about fluoride. Only 16.8% correctly answered the question about sign of tooth decay. Slightly less than half 48.4% could not define the meaning of plaque. Thus oral health knowledge in Qatar is below the satisfactory level.¹¹ Geethapriya PR et al¹⁹ Found that age did not seem to influence the dental caries status, oral hygiene status, and knowledge related to oral health. Both the younger and older children had similar caries status. The older children had better knowledge on oral health,

but the oral hygiene practices were not followed effectively. In their study both third and fifth grade children had similar caries status. The caries treatment needs was significantly higher ($p = 0.02$) in fifth grade children of school III. The oral hygiene status was significantly better ($p = 0.004$) in fifth grade children of school I and third grade children ($p < 0.001$) of school III. Fifth grade children were found to have more knowledge on oral health and it was statistically significant in school II ($p = 0.001$). In school III, as caries status increased, the oral hygiene index score significantly increased ($p = 0.001$). But in present study showed impact of age on knowledge score of children (Table 6).

Finding of the study revealed that there is no significant impact between both sexes and knowledge of children regarding prevention and prevalence of dental caries. Abd El-Kareem et al²⁰ in their study revealed that the majority of the studied subjects possess unsatisfactory level of knowledge score, in the same line with study conducted by Abd-Alsemia, et al²¹, who reported that the majority of studied children had poor level of knowledge regarding to dental caries and care. They also revealed the majority of the studied subjects who possessed unsatisfactory level of knowledge were males under age of 10 years and lived in urban, this finding come in accordance with Al-Darwish¹¹, who examined oral health knowledge, behavior and practices among school children in Qatar; found that the highest percentage of the studied sample that have poor knowledge related to oral health were boys, under age of 12 years and lived in urban. In contrast to this present study no influence of gender on knowledge score on dental caries and oral practices (Table 5). Similarly Imran et al²² examined knowledge and practice of oral health among higher secondary school students to determine the knowledge and practice of oral health among higher secondary school students and revealed no significant difference for knowledge and practice among male and female students El-Nasr²³ (2017) also revealed no statistically significant correlation between sex and place of residence with total knowledge and total practice before and after the oral health intervention program. Same results found by Jose A Joseph.(2003)²⁴.

Conclusion

Majority of the respondents who visited dental clinic (55%), out of that 38.8 respondents (70.5%) visited due to toothache. There were 5% of respondents were absent to school due to dental problem. The mean knowledge on prevention of dental caries was different among different age group under study and no difference was seen among males and females. Significant impact of medium of instruction on knowledge of children in prevention of dental caries was also reported in present study. English medium students' have higher knowledge score (70.24%) whereas students of Punjabi medium showed 43.83%. Evaluation of frequency of consumption of sweets and soft drinks indicated that 38.7% never drink soft drinks and 53.7% drink occasionally. 61.2% of respondents take sweets and cake occasionally where as 3.8% take thrice a week. Only 2.5% of respondents never take chocolate but 40% of them take occasionally and 27.5% once in a week and 15% of them take twice and thrice a week respectively. Dentist have very important role to play in the early detection, treatment and prevention of the disease and also enable individual and families to attain and maintain the highest possible level of health. The ultimate goal of dental intervention is to help people to help themselves. Hence the most important role played by dentist in relation to health promotion is that of a health educator. Health education is a process that helps people to make sound decisions about personnel health practices and about the individual, family and

community's well-being. Health education in schools helps children to learn health practices and life style.

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