

IMPACT OF FAMILY CHARACTERISTICS, PARENTAL EDUCATION, AND AREA OF RESIDENCE ON DENTAL CARIES KNOWLEDGE SCORE OF SCHOOL CHILDREN

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Abstract

Aims and objectives: The aim of study was to evaluate the impact of family background, income of parents and parental education on child's knowledge score regarding dental caries and oral health practices.

Materials & methods: The study was conducted in two schools of Mandi Gobindgarh. The target population of the study was the school children within the age group of 10 to 12 years. Based on the selection criteria 80 subjects (40 from urban school, 40 from rural school) were considered as the samples for the study. Data was collected to analyze knowledge score of school children and impact of different family characteristics on knowledge score of children.

Results and conclusions: The knowledge of school children regarding prevention of dental caries was inadequate. Majority of the respondents were belonging to Sikh religion (88.8%) and from nuclear family (77.5%). Majority of the mother were housewives (72.5%). Among Parents (38.8%) were illiterate. Urban school children had more knowledge on dental caries than rural school children. Children from Urban school showed 2.5% (poor), 27.5% (average), 65% (good) knowledge and children from Rural school showed 7.5% (poor), 27.5% (average), 0.0% (good). The Mean knowledge score was 57.04%.

It was found that area of residence, education of father and mother of child and income of parents have association with knowledge score of children for prevention of caries. There was no impact of type of family and number of children in a family on dental caries knowledge score of children.

Keywords: Dental caries, enamel, family background, knowledge score.

INTRODUCTION

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 affects 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.¹ Normal healthy teeth are smooth, white and shiny. A chalky white discoloration of the enamel is an early indication of caries formation. Brown or Black discolorations indicate the formation of caries. Dental caries involves loss of tooth structure or the formation of cavity as a result of bacterial attack first on the enamel and then on the pulp. There are many complications as a result of dental caries or missing teeth. Child may experience many problems like poor nutrition, faulty speech habit, psychological problems and oral foci of infection.

It is essential that the common man is made aware of the methods of proper health care and also should be educated regarding the consequences of the lack of oral health. The dental diseases usually start in childhood and lead to complications and tooth mortality. It is thus essential that to detect and treat these dental problems at the earliest and also very important to prevent, by educating the children and parents. Dental caries is the single most common chronic childhood disease affecting children ages five through seventeen years. Prevalence of dental caries five times more common than asthma and seven times more common than hay fever.² Of the WHO goals for the global oral health,

the first goal is the 50 percentage of the five to six years old children should be caries free and the second goal is that the global average should not be more than three decayed, missing or filled teeth at twelve years of age. Prevention and early diagnosis are just as important in managing dental diseases, specifically dental caries as in managing any other infectious diseases³

For positive results in oral health, children have to form core target group, so the only constructive and practical solution to this grave problem of dental health is the initial detection and prevention of dental diseases. Hence it is necessary to introduce "intensive dental health care programme" covering the children and involving the schoolteachers and parents. Continuous educational programme should be conducted in the schools⁴

A higher percentage of children do not receive dental supervision and significant number reach adulthood without having been examined or treated. Many dental problems can be prevented if children and parents are well informed of the causes of dental diseases, prevention and aware of the importance of regular dental care.⁵ Parental attitudes toward the importance of oral hygiene have influence on the formation of their children's oral habits and the prevalence of oral diseases. Therefore the aim of present study was to evaluate the impact of family background, parental education on child's knowledge score regarding dental caries and oral health practices.

Materials and Methods

The study was conducted in two schools of Mandi Gobindgarh. The

first school was Primary School, which was situated in Mandi Gobindgarh, and it is in the outskirts of the city i.e., 22 kms away. It has 1-7 standards each with three sections. There were 756 students and 16 teachers. 95% of students were belonging to backward caste. Students were provided mid-day meals free of cost.

The second school i.e., school of Mandi Gobindgarh was situated at the heart of the city. It was an English medium school, which has standards from 1st to 12th standards. There were 780 students and 36 teachers. 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.

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 the 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.

Sampling is a process of selecting a portion of the population to obtain data regarding a problem. In this study purposive sampling technique was used to select area. Simple random sampling technique was used to select the subjects (40 from urban school, 40 from rural school) 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 by. The review of literature, opinion from experts in the field of child health nursing, dental health department, Pediatric department and materials from various sources helped in the selection of content for structured interview schedule.

Description of tool

The final format of structured interview schedule comprised of two parts.

Part 1 –It consisted of items describing sample characteristic parent's education and occupation, family income, type of family, number of children in family, religion, and residence.

Part 2 –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

Characteristics	Category	Respondents	
		Number	Percent
Living Children	One	26	32.5
	Two	39	48.8
	Three	15	18.7
Residence	Rural	40	50.0
	Urban	40	50.0
Type of Family	Nuclear	62	77.5
	Joint	18	22.5
Religion	Sikh	71	88.8
	Hindu	2	2.5
	Muslims	7	8.7
Family Income /m	<Rs.2,500	19	23.8
	Rs.2,501-5,000	28	35.0
	Rs.5,001-10,000	15	18.7
	>Rs.10,000	18	22.5
Total		80	100

Table 1: Family related characteristics of Respondents

Table 1 It represented majority of the respondents belong to nuclear family (77.5%) and 22.5% belongs to joint family. Sikh religion found with 88.8%, 2.5% of Hindu and 8.7% of Muslims. 50% of the children belonged to rural and 50% of them belong to urban family. Majority of respondents belonged to family with income of Rs 2501 – 5000 per month (35%), 23.8% of respondents were found in the income group of below Rs 2500 rupees and above Rs.10, 000 were 22.5% only. Families with one child constituted 32.5%, families with two children and families with three children were 18.7 percent.

Characteristics	Father (N=80)		Mother (N=80)	
	Number	Percent	Number	Percent
Education				
Illiterate	8	10.0	23	28.8
Primary	11	13.8	11	13.7
Secondary	16	20.0	8	10.0
PUC	14	17.5	13	16.2
Graduation	21	26.2	20	25.0
Post graduation	10	12.5	5	6.3
Occupation				
Daily wages	21	26.2	4	5.0
Housewife	0	0.0	58	72.5
Farmer	6	7.5	0	0.0
Government	31	38.8	12	15.0
Private	14	17.5	4	5.0
Business	8	10.0	2	2.5
Total	80	100	80	100

Table 2: Educational level and Occupational Status of Parents

Table 2 depicted the educational level and occupational status of both parents. Among mothers 25% were completed their graduation, 6.3 % post graduation, and 28.8% were illiterate. Among fathers 26.2% were educated upto graduation, 12.5% post graduation. 10 % fathers were found to be illiterate. Nature of occupation showed the number of daily wages were 21 (26.2%) among fathers, 4 (5%) among mothers. Housewives were 58 (72.5%). Only 12.2% parents were engaged in business where as 38.8% fathers and 15% mothers were found as government employees

NS: Non-Significant

Type of Family	Sample (n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
Nuclear	62	17.02	56.72	15.6	0.11NS
Joint	18	17.44	58.14	17.8	
Combined	80	17.11	57.04	16.0	

Table 3: Impact of Type of family on Knowledge of children in prevention of dental caries

Table 3 showed the association between the type of family and knowledge of children for prevention of dental caries. It can be concluded that there was no association between the type of family and knowledge of children in prevention of dental caries (F value – 0.11).

*Significant at 5% Level (P<0.05)

Residence	Sample (n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
Rural	40	13.15	43.83	7.1	173.14*
Urban	40	21.07	70.24	10.5	
Combined	80	17.11	57.04	16.0	

Table 4: Impact of Residence on Knowledge of children in prevention of dental caries

Table 4 depicted the impact of area of residence on knowledge of children in prevention of dental caries.. It was evident from the findings that respondents of urban family showed higher mean knowledge score (70.24 %) as compared to rural respondents (43.83%) .The data subjected to statistical test which indicated that the impact on residence is significant at 5% level. (F=173.14*).

*Significant at 5% Level

Education of Father	Sample (n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
Illiterate	8	12.75	42.51	5.5	43.19*
Primary/Secondary	27	13.07	43.58	7.6	
PUC	14	18.14	60.46	12.3	
Graduation	31	21.29	70.96	11.3	
Combined	80	17.11	57.04	16.0	

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

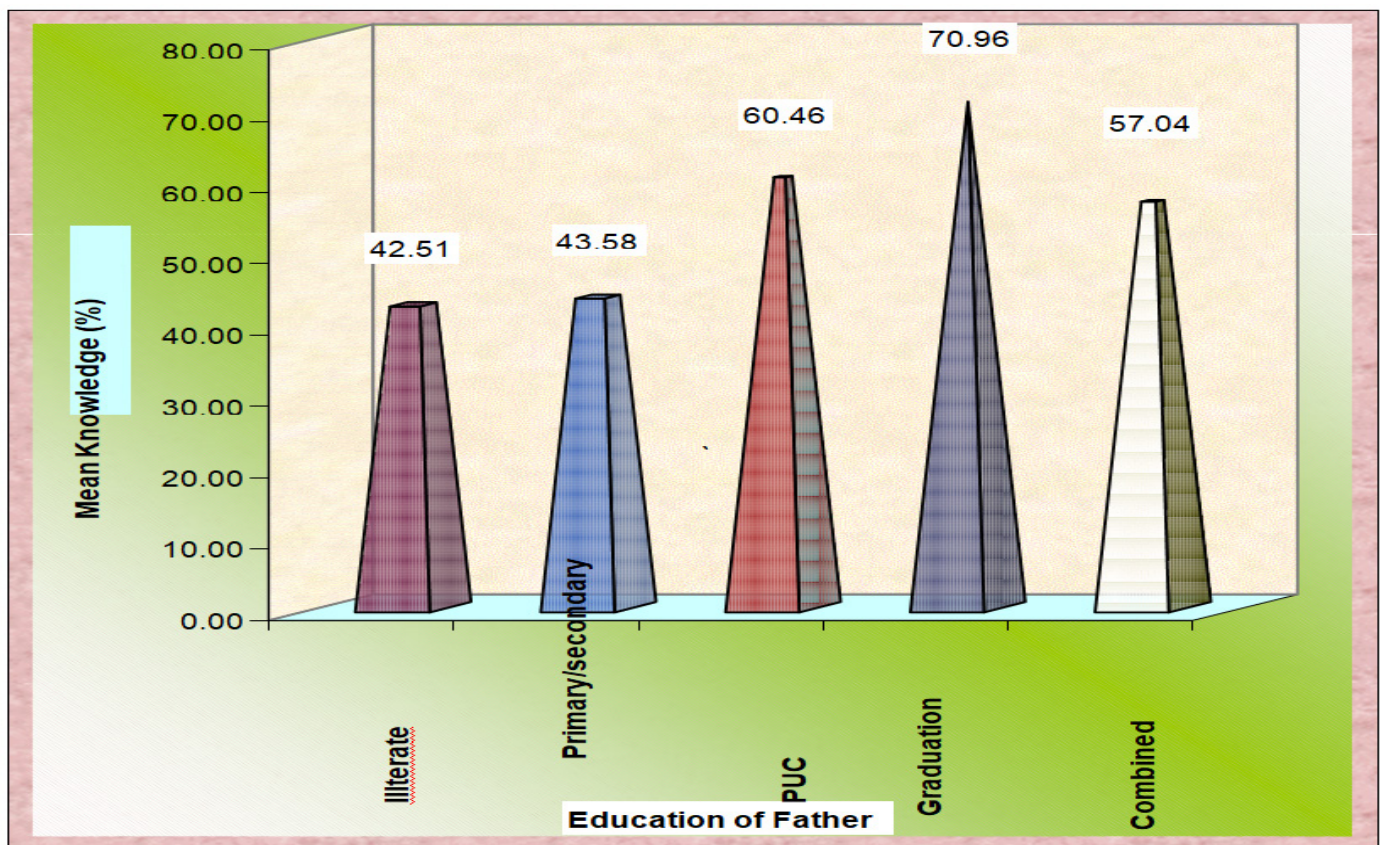


Table 5 showed that the mean knowledge of children whose fathers were illiterate found to be 42.5% followed by primary, secondary educational level 43,58%, P.U.C (60.46%) respondents of graduate fathers had knowledge score of 70.96%. The results indicated that the higher educational level of father better was the knowledge of child (F=43.19*) (figure 1).

Figure 1: Impact of Education of Father on Knowledge of children in prevention of dental caries

Education of Mother	Sample(n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
Illiterate	23	12.87	42.90	6.0	26.43*
Primary/Secondary	19	16.10	53.67	14.4	
PUC	13	17.54	58.46	14.2	
Graduation	25	23.95	71.86	11.1	
Combined	80	17.11	57.04	16.0	

*Significant at 5% Level

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

Table –6 showed that the mean knowledge score of children having illiterate mothers found to be 42.9% followed by primary, secondary educational level mothers (53.67%), P.U.C (58.46%). Knowledge of children whose mothers were graduate found to be 71.86%. The result clearly established that the higher educational level of mother, better the knowledge score of children. Further statistical F test result ($F=26.43^*$) showed the impact of education of mother on knowledge of children in prevention of dental caries (figure 2).

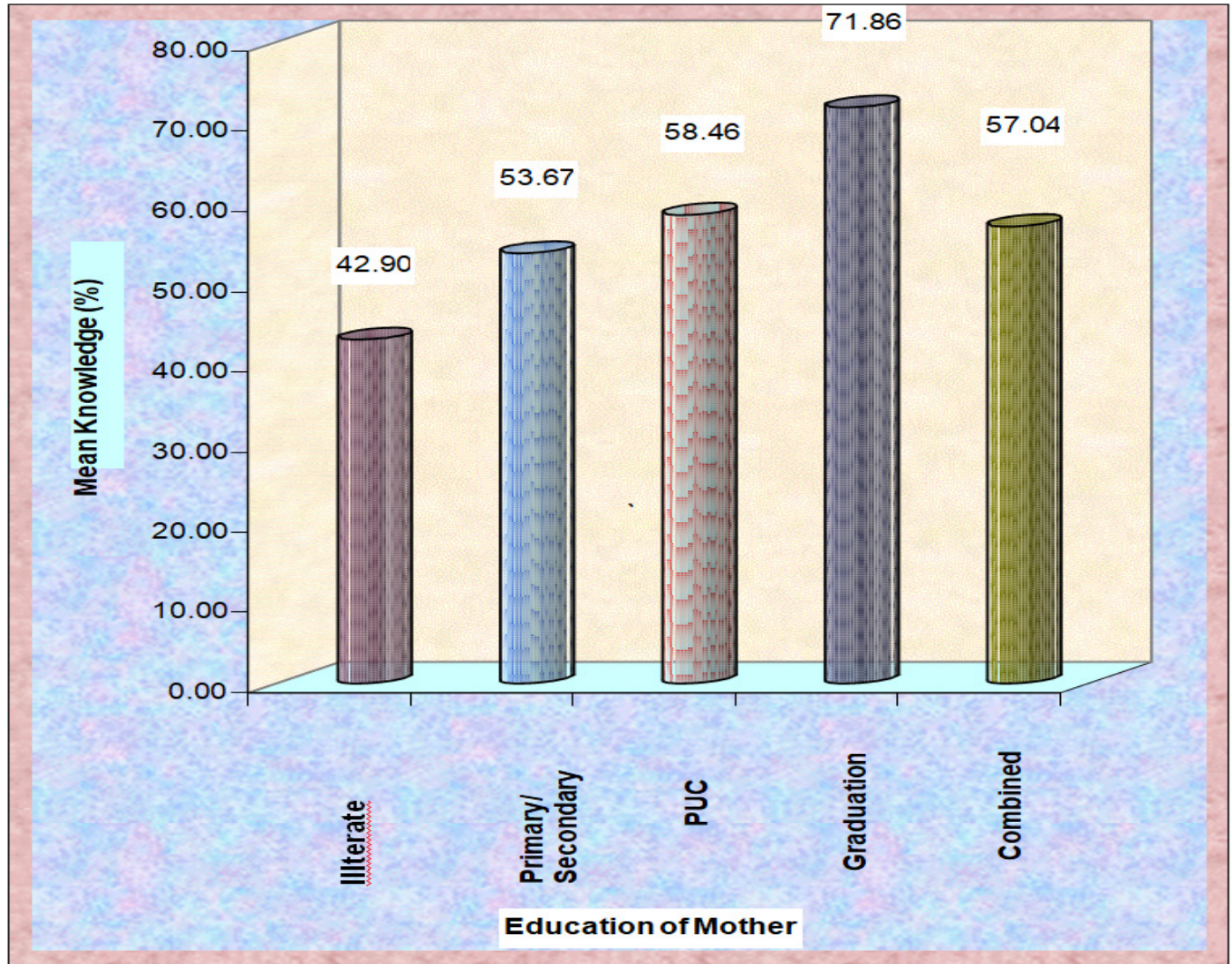


Figure 2: Impact of Education of Mother on Knowledge of children in prevention of dental caries

No. of children	Sample (n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
One	26	16.12	53.72	16.2	1.12NS
Two	39	17.90	59.65	15.8	
Three	15	16.80	56.00	15.9	
Combined	80	17.11	57.04	16.0	

*NS: Non-Significant

Table 7: Impact of number of children on Knowledge of children in prevention of dental caries

Table –7 depicted the impact of number of children on their knowledge for prevention of dental caries. The mean knowledge score of respondents who were single child of their family was 53.72% compared to 59.65% 56.00% with existing two and three children in the family respectively. However non significant statistical test ($F=1.12\text{ NS}^*$) established no impact of number of children on dental caries prevention knowledge of children.

Family Income /m	Sample (n)	Knowledge Score (%)			F Value
		Mean	Mean (%)	SD (%)	
<Rs.2,500	19	12.89	42.98	6.8	32.76*
Rs.2,501-5,000	28	15.18	50.59	14.0	
Rs.5,001-10,000	15	20.00	66.65	9.8	
>Rs.10,000	18	22.16	73.88	9.0	
Combined	80	17.11	57.04	16.0	

*Significant at 5% Level

Table 8: Impact of Family Income on Knowledge of children in prevention of dental caries

Impact on family income on knowledge of children for prevention of dental caries was shown in table 8. The higher mean knowledge score was found to be 73.88% among respondents who belong to family with income > Rs.10000 per month followed by 66.65% score with income Rs 5001-10000, 50.59% with Rs 2501 –5000 and the less knowledge found with respondents of family having income < 2500 per month. The results clearly indicated that higher the income level of family, better the mean knowledge of respondents on prevention of dental caries.

Discussion

The present study was undertaken to assess the knowledge of school children regarding prevention of dental caries in selected schools i.e., schools of Mandi Gobindgarh with a view to develop health education module. A simple random sampling technique was used to select samples by lottery method.

The findings of the study revealed that the mean knowledge of school children {57.4%} regarding dental caries found to be inadequate to prevent dental caries. In Urban school 2.5% children showed poor knowledge score, 27.5% average, 65% have good knowledge and in Rural school 7.5% children have poor knowledge, 27.5% average. Many studies revealed the inadequacy of knowledge among school children. These findings of this study were supported by studies conducted by Safola II⁶ and Oliveira ER et al (2000)⁷.

The finding of the study revealed that there was significant impact of education of the parents, significant at 5% level (Table 5 and 6). The knowledge of children was found more whose parents are educated so research hypothesis was accepted. This is in concordance with the findings of Vigild and Peterson (1999)⁸.

The findings of the study revealed that the knowledge of children increases where the family income increases. Children who belonged to the family with

income below Rs.2500 have the knowledge mean score of 42.98%. Whereas the mean knowledge score of children belonged to the family with income above Rs.10,000 was found to be 73.88% (Table 8). The prevalence of dental caries was also more in low socio-economic group due to poor oral hygiene. It is supported by Kulkarni S (2002)⁹. Ellakany P et al observed a high educational level of parents and high income were correlated with a lower prevalence of decayed teeth.¹⁰

Finding of the study revealed that there was no significant impact of type of family and number of children in a family on the knowledge score of children regarding caries prevention (Table 3 & 7). So Research hypothesis rejected and null hypothesis accepted.

Findings of the study stated that the school children should be imparted knowledge through continuous education and printed materials; it is incidence with the study of Ilieva¹¹. Findings indicated the need for an effective health education module for school children with colorful pictures.

Conclusion

The knowledge of school children regarding prevention of dental caries was inadequate. In Urban school 2.5% children showed poor knowledge score, 27.5% average, 65% have good knowledge and in rural school 7.5% children have poor knowledge, 27.5% average. Many studies revealed the inadequacy of knowledge among school children. Urban school children had more knowledge on dental caries than rural school children and the Mean knowledge score was 57.04%. There was a significant association between the knowledge of children in urban and rural schools. There was a significant association between the educational status of parents and children's knowledge score. Also the family income and knowledge score of children were associated with each other. More the family income, higher the knowledge score of child. There was no significant association between the type

of family, number of child in family and the knowledge of children.

Overall findings revealed that the knowledge of school children was not adequate for the prevention of dental caries and it was concluded that continuous educational programme should be carried out in all schools. Thus the present study strongly emphasizes the need for enhancement in knowledge and change in oral health practice in order to prevent dental caries.

References

1. Donnal Wang and Merlin. Essentials of pediatrics Nursing. 6th ed. India Mosby Harcourt; 2002 .
2. World health Organization. The world health report. Shaping the future. (N.Y) Oral health home; 2003 .
3. MMWR promoting oral health. Intervention for dental caries. Atlanta. 2001/vol 50 No R.R 21
4. Jong's community dental health 5 th ed. Mosby; 2003.
5. U.S. department of Health and Human Services. Oral health in America; A report of the National institute of dental and craniofacial research. Washington; 2000.
6. Sofola II, Shaba of Jeboda Oral hygiene and periodontal treatment needs of urban school children compared with rural school children in Nigeria. *Odontostomatol Trop*, 2003 26(101): 25-9
7. Oliveira ER, Narendran S Williamson D Oral health knowledge, attitudes and preventive practices of third grade school children in Horns country, *pediatri dent* 2000, 22(5) :395 – 400
8. Vigild, M, pelerson Hadi Oral health behaviour of 12 year old children in Kuwait. *Int. J Paediatr Den*, 1999, Morch, 9(1): 23-9.
9. Kulkarni S, Deshpandeh, Carries prevalence and treatment needs in 11-15 yrs. Old children of Bel-gam city , *journal of Indian pedodontics and preventive dentistry* ,2002, 20(1) :12-15.
10. Ellakany P, Madi M, AlHumaidInt J J Environ Res Public Health. 2021 Nov; 18(22): 11862.
11. Iileva EL Measure of efficiency of dental health education with reference to dental caries, *Folia Med* 2001,43{1-2}:20-24.