

Knowledge, Attitude, Practice and Prevalence of dental caries in school children (Age12 to 16 years) in Najran, Saudi Arabia

Khalid Alshamrani* Ahmed Alassiry**

* Demonstrator at preventive department, College of Dentistry, Najran University,

E-mail:Khalid-slim@hotmail.com

** Assistant professor at preventive department, College of Dentistry, Najran University,

Email:ahmedassiry@hotmail.com

ABSTRACT:

Aim: To assess the knowledge, attitude, and oral health care practices and to study the prevalence of dental caries among male school students in Najran city, Saudi Arabia.

Materials and Method: This study is a questionnaire based cross sectional study involving 300 school going children aged between 12 to 16 years. The children were selected using stratified random sampling method. Dental caries was recorded using Decayed, Missing, and Filled Teeth (DMFT) index. Data on oral health knowledge, attitude, and behavioral practices were collected by means of a self-administered questionnaire.

Results: The rate of caries prevalence is 76.3% and the incidence of dental caries was found to be highest in the age group of 16 years. A majority of the students (62%) said they used toothbrush while 50% of the students reported the use of a chewing stick.

Conclusion: Lack of knowledge regarding oral health predisposes to dental caries. Children who had not been exposed to a dental visit for a long time tend to fear dental visits.

Keywords: Knowledge, Attitude, Practice, dental caries, school children, Najran

1. INTRODUCTION:

Oral health has remained as an integral part of an individual's general health and over all well-being¹⁻³. Good oral health practices are necessary from a young age to ensure positive long term dental health and hygiene⁴. One of the most common oral diseases is dental caries. Dental caries remains a major oral health disease-affecting children world-wide⁵. About 90% of school children worldwide and most adults have experienced caries, with the disease being most prevalent in Asian and Latin American countries⁶. For children in particular, poor oral health can have negative impacts on quality of life and academic performance at school⁷. Apart from causing chronic pain and discomfort, untreated dental caries can impact daily activities in terms of play, sleep, eating and school activity^{8,9}. Maintaining good oral hygiene is considered a lifelong habit. Moreover, these oral health habits are said to begin in an early stage of life.¹⁰ In order to follow healthy oral habits, it is important to have good knowledge and attitude toward oral health.^{11,12}

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 reached¹³. To create such oral health education, the assessment of knowledge and attitude is essential¹⁴. This knowledge will, in theory, lead to a change in attitude, which will in turn lead the individual to make changes in their daily life¹⁵. The KAP (knowledge, attitude, practice) model of oral health education is often the foundation of most health education programs. According to this model, adequate oral health practices occur due to healthy attitudes which in turn develop due to proper knowledge¹⁶.

2. MATERIALS AND METHODS:

This study was a cross sectional survey which included 300 students, aged between 12 to 16 years. Boys attending government schools were selected for the study. The school and the students were selected by Random sampling method. Prior consent was obtained from the school authorities. Children from this age group were selected as it would be easy for them to understand and answer the questionnaire. 60 students from each age group were selected. The questionnaire consisted of three sections, oral health knowledge and prevention, oral health practice and dental visits. A total of 30 questions were asked relating to demographics, oral health practice, oral health knowledge and prevention and utilization of dental services. The questionnaire was in Arabic. It was distributed among the children and the importance of answering was explained. Children were asked to answer the questionnaire under the supervision of teachers and communication between the students was not allowed while answering the questions.

The clinical oral examination was conducted in the school classroom according to the WHO criteria. The prevalence of dental caries was recorded using the Decayed, Missing, and Filled Tooth (DMFT) Index. The data obtained from the questionnaire was entered using SPSS package.

3. RESULTS:

A total of 300 students from government schools were selected. The age group selected in our study was 12 to 16 years (table 1). On examination it was found that a total of 76.3% of the students had caries and 23.6% students were caries free. Caries incidence was highest among children aged 16 years and lowest among children in the age group of 14 years (63.3%) (Table 2). DMFT score was recorded for all the groups, the scores was highest for decayed, followed by filled teeth and least was missing in all age groups in the same order. It was found that 90% of children belonging to age group 16 years had dental caries, and 40% in same age had a filling in their teeth, which is the highest percentage in the selected age. Among children of 15 years, only 10% of the children had missing teeth, which it is the lowest percentage in the selected age (table 3).

The questionnaire was based on 30 questions. There were questions based on knowledge of oral health with regard to dental caries and they had three options: yes, no and don't know (table 4). With regard to questions on different methods used for cleaning teeth, 62% students said they used toothbrush, 50% said they used chewing stick, 14% used dental floss and 16% said they didn't use anything (table 5). When asked about the frequency of brushing, 25% said they brushed once daily, 15% said they brushed twice a day, 7% said they brushed once a week whereas 10% said 2-3 times a week and 5% said 2-3 times a month (table 6). When asked about the reason for not using tooth brush, 7% said they didn't know the reason and 6.67% said that they had no time to brush (table 7). 23% said they used fluoridated toothpaste (Table 8). With regard to questions pertaining to the frequency of visiting a dentist, 4% said they don't remember when they had visited a dentist, whereas 34.33% had visited the dentist less than a year ago, 15.3% said that they had visited a dentist 1-2 years ago (Graph 2) 43% said that they had never visited a dentist (table 9). A few of the students (16.6%) felt that there was no need to visit a dentist, 11.3% gave fear of pain as a reason for not visiting a dentist and 7.3% said that their parents didn't take them to a dentist (table 10). 17% said they had visited dentist in past 12 months however only 1% said they visited more than 4 times in 12 months (table 11). 23% of the students had last visited a dentist for filling of teeth, 17% students underwent extraction (table 12). When asked about sugar consumption and its frequency, majority of them had multiple exposure to sugar (table 13).

4. DISCUSSION:

This study was aimed at studying the knowledge, attitude, practices and prevalence of dental caries in 300 school children who belonged to the age group 12 to 16 years. The results indicated a very high incidence of dental caries (76.3%) in students who belonged to the age group of 16 years. Only 23 % were caries free, which is a matter of concern. The rate of caries prevalence was found to be 62% in 12-year old schoolchildren from Baghdad, Iraq which was lesser than our study.¹⁷

Dental caries is a preventable disease and if it is noticed at an early stage, children cooperate better and parents save their valuable time and money spent on dental treatments. Dental caries is a social problem and can be prevented by increasing the knowledge among children, teachers and parents. Students should be aware of the importance of regular visits to a dentist. Parent teacher meetings should be held where importance of oral hygiene can be discussed.

In this study, it was found that there was lack of knowledge among the children with regard to brushing, flossing and regular dental visits. Lack of knowledge is one of the of the risk factors for increasing rate of caries.¹⁸

Based on the questions asked regarding dental knowledge and awareness, the following findings were observed A large number students (80%) said they are aware about dental caries. 77% consumed milk with sugar (table 13). Only 15% students understood the importance of brushing twice daily. Less than half, (23%), of the children, had actually heard about fluoride. In most of the cases there was lack of knowledge and special attention was required.¹⁹Lack of knowledge makes dental visit very scary. Those children who have not been exposed to a dental visit for long time tend to fear more.²⁰ In present study ,11% of the students didn't visit dentist due to fear of pain.

A KAP model is one of the best method to assess knowledge and behavior. Various community based screening and treatment camps can help in increasing awareness among students and it helps to eliminate dental fear.

Toothbrushes were the most commonly used oral hygiene aids (62%), in our study and this is in agreement with findings obtained among 12-14 year-old children in Saudi Arabia and Kuwait by Al- Sadhan S.²¹ However, as for the use of dental floss to clean in-between teeth was still not very popular in current study(14%). The most common reason for not using a toothbrush was given as not knowing the reason whereas only 7% said that they forgot to brush and a very small percentage (0.33%) said that nobody brushed in their family.(table 7).

The prevalence rate of dental caries among school children according to W.H.O in 2007 is 60%– 90%.²²In present study the prevalence rate was 76.3%. The prevalence of dental caries among 3- 14 years old children was found to be 80.92% in Maharashtra which is higher than reported in the present study.²³Limitation of our study was, it was a cross sectional study, only governmental schools were selected randomly. So results of our study can only be generalized to populations with characteristics similar to the children who participated in the study.

5. CONCLUSION:

It can be concluded that there is a lack of knowledge among school children regarding brushing, flossing, and regular dental visits. Lack of knowledge is a risk factor for increasing rate of caries.

6. CONFLICT OF INTEREST

We declare that there is no conflict of interests and no financial support was received during the study.

Table 1: Age Distribution

Age group	Frequency
12	60
13	60
14	60
15	60
16	60

Table 2: Prevalence Of Caries By Age

Age	With caries	Caries Free
12	49	11
13	41	19
14	38	22
15	47	13
16	54	6
TOTAL	229	71

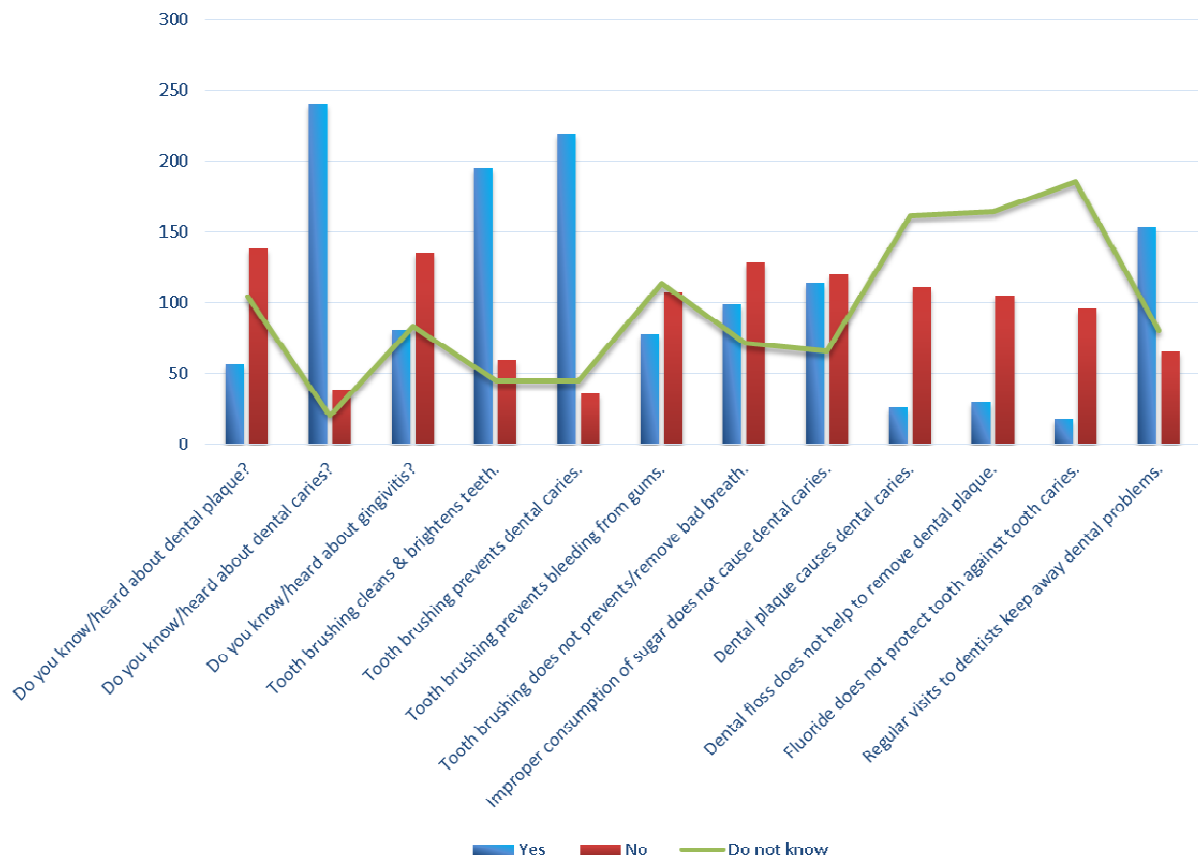
Table 3: DMFT Scores

Age	D	Percentage	M	Percentage	F	Percentage
12	49	81.67%	7	11.67%	20	33.33%
13	41	68.33%	9	15%	17	28.33%
14	38	63.33%	8	13.33%	12	20%
15	47	78.33%	6	10%	18	30%
16	54	90%	7	11.67%	24	40%

Table 4: Knowledge about Dental Diseases and their prevention(n=300)

	Yes (Agree)	centage	No (Disagree)	centage	Do not Know	centage
Know or heard about dental Plaque.	57	19%	138	46%	105	35%
Know or heard about dental caries.	240	80%	39	13%	21	7%
Know or heard about gingivitis.	81	27%	135	45%	84	28%
Tooth brushing cleans & brightens teeth.	195	65%	60	20%	45	15%
Tooth brushing prevents dental caries.	219	73%	36	12%	45	15%
Tooth brushing prevents bleeding from gums.	78	26%	108	36%	114	38%
Tooth brushing does not prevents/remove bad breath.	99	33%	129	43%	72	24%
Improper consumption of sugar does not cause dental caries.	114	38%	120	40%	66	22%
Dental plaque causes dental caries.	27	9%	111	37%	162	54%
Dental floss does not help to remove dental plaque.	30	10%	105	35%	165	55%
Fluoride does not protect tooth against tooth caries.	18	6%	96	32%	186	62%
Regular visits to dentists keep away dental problems.	153	51%	66	22%	81	27%

Responses of school children to questions on knowledge about Dental diseases & prevention



graph: 1

Table 5: Aids used for cleaning teeth (n=300)

	Number	Percentage
Toothbrush	186	62%
Dental Floss	42	14%
Chewing stick/Miswak	150	50%
Mouthwash	69	23%
Toothpick	129	43%
Do not use anything	48	16%

Aids used for cleaning teeth

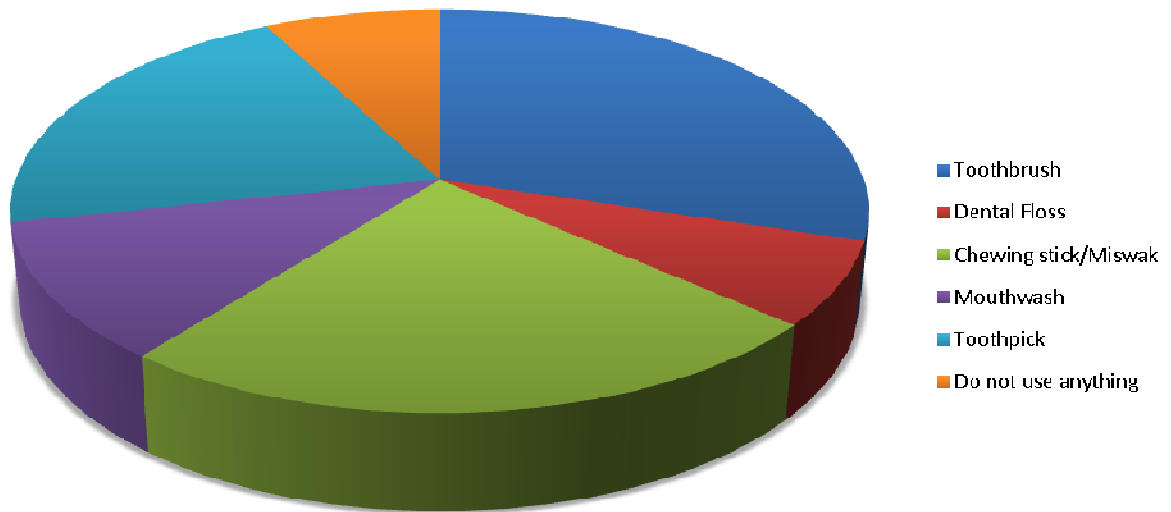


fig: 1

Table 6: Frequency of tooth brushing (n=300)

	Number	Percentage
Once a day	75	25%
Twice a day	45	15%
Once a week	21	7%
Several times a week (2-3 times)	30	10%
Several times a month (2-3 times)	15	5%

Frequency of toothbrushing by school children

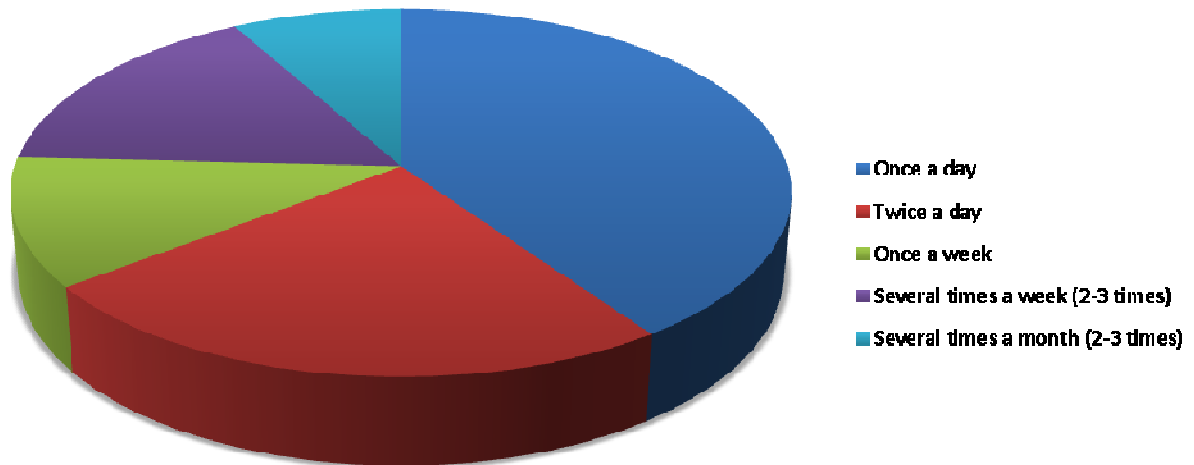


fig: 2

Table 7: Reasons for not using tooth brushing (n=300)

	Number	Percentage
Parents do not provide	14	4.67%
Parents do not instruct/motivate	12	4%
Nobody brush teeth in my family	1	0.33%
Always forget to brush my teeth	21	7%
Do not know the benefit of brushing	5	1.67%
Do not like the smell of tooth paste	5	1.67%
Gums are bleeding when brushing	13	4.33%
No time for brushing	20	6.67%
Do not know the reason	23	7.67%

Reasons for not using tooth brushing

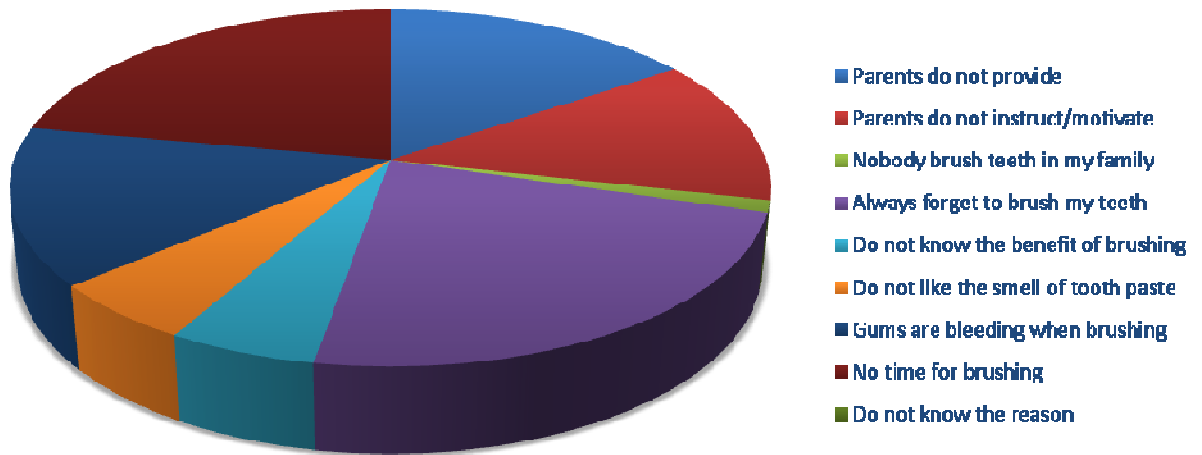


fig: 3

Table 8: Use of fluoridated toothpaste for cleaning teeth (n=300)

	Yes	No
Use of fluoridated toothpaste	69	231

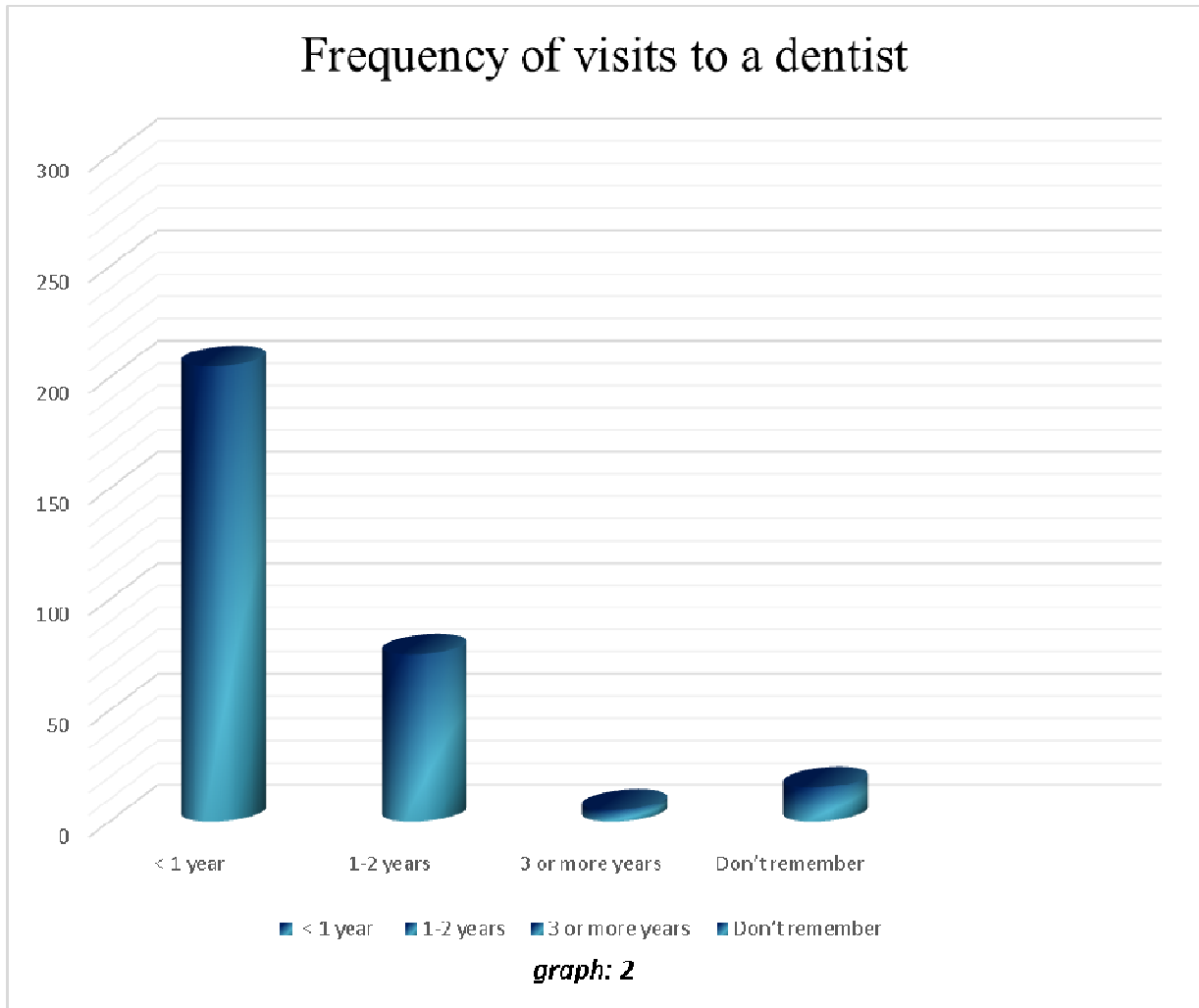


Table 9: Visits to the dentist (n=300)

Have visited	Haven't visited	Percentage of school children who have visited a dentist
129	171	43%

Table 10: Reasons for not visiting a dentist (n=300)

	Number	Percentage
No need to visit dentist	50	16.67%
Difficulty in getting appointment	11	3.67%
Fear of pain	34	11.33%
Parents did not take me to dentists	22	7.33%
Don't know/Do not have any idea	12	4%

Reasons for not visiting a dentist

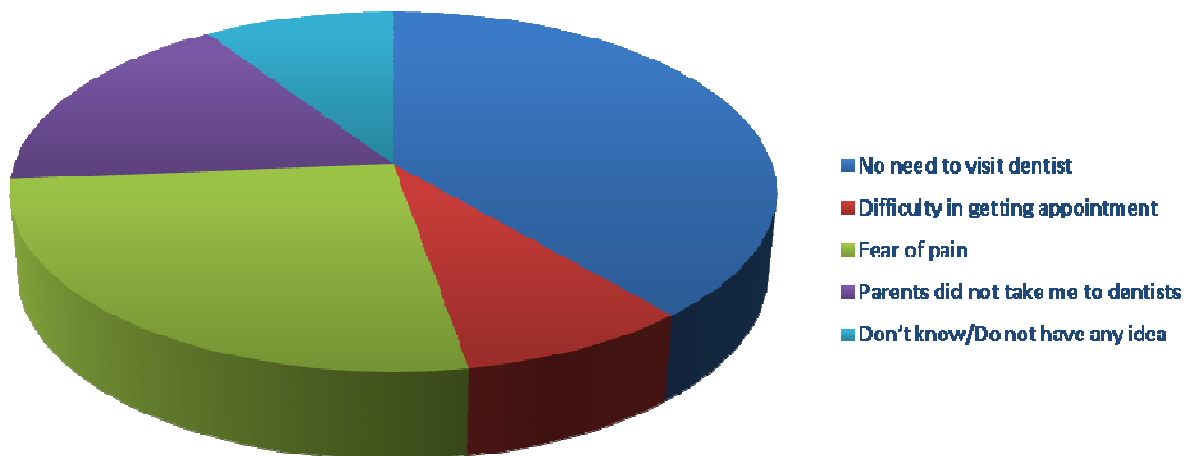


fig: 4

Table 11 : Frequency of visits to a dentist during the past one year (n=300)

	Number	Percentage
Once	51	17%
Twice	24	8%
3 times	12	4%
4 times	6	2%
More than 4 times	3	1%
I do not know/don't remember	12	4%

Table 12: Reasons for last dental visit (n=300)

	Number	Percentage
Routine checkup	6	2%
Filling	68	22.67%
Extraction	51	17%
Pain	37	12.33%
Dental/Tooth trauma	3	1%
Orthodontic care	3	1%
Do not know	3	1%

Reasons for last dental visit

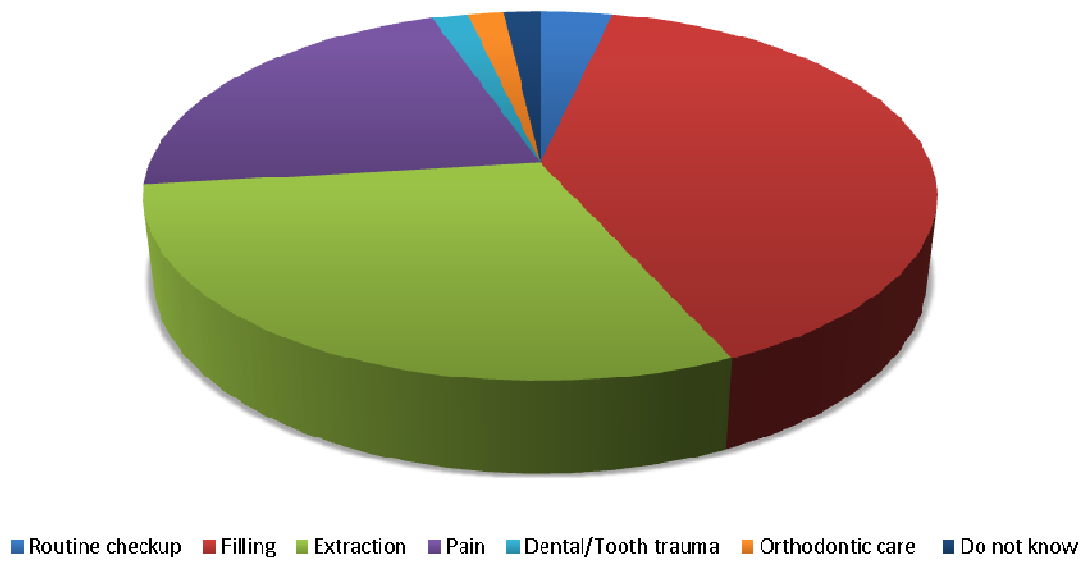
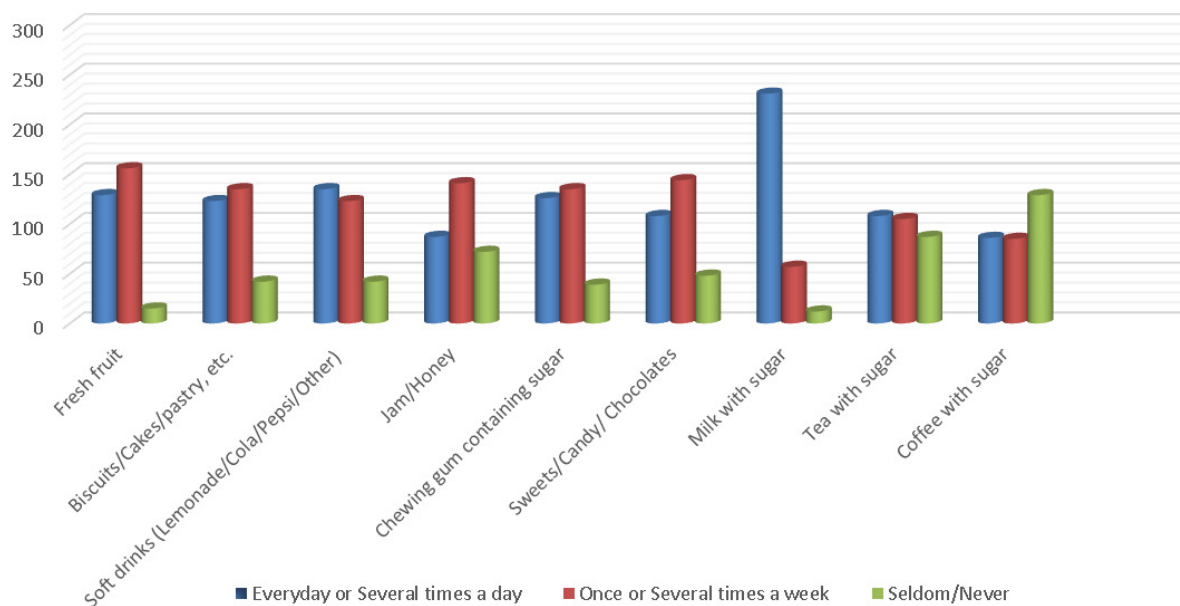


fig:5

Table 13: Frequency of consumption of various food & drinks (n=300)

	Every day Or Several times a day	Percentage	Once Or Several times a week	Percentage	Seldom/ Never	Percentage
Fresh fruit	129	43%	156	52%	15	5%
Biscuits/Cakes/pastry, etc.	123	41%	135	45%	42	14%
Soft drinks (Lemonade/Cola/Pepsi/Other)	135	45%	123	41%	42	14%
Jam/Honey	87	29%	141	47%	72	24%
Chewing gum containing sugar	126	42%	135	45%	39	13%
Sweets/Candy/ Chocolates	108	36%	144	48%	48	16%
Milk with sugar	231	77%	57	19%	12	4%
Tea with sugar	108	36%	105	35%	87	29%
Coffee with sugar	86	28.67%	85	28.33%	129	43%

Frequency of consumption of various food & drinks



graph: 3

7. References:

1. H.C. Gift, K.A. Atchison Oral health, health, and health-related quality of life *Med Care*, 44 (1995), pp. 601-608
2. T.A. Dolan, B.F. Gooch, Linda B. Bourque Associations of self-reported dental health and general health measures in the Rand Health Insurance Experiment. *Commun Dent Oral Epidemiol*, 191 (2006), pp. 1-8
3. W. Sabbah, G. Tsakos, T. Chandola, A. Sheiham, R.G. Watt Social gradients in oral and general health *J Dent Res*, 86 (2007), pp. 992-996
4. Friel S, Hope A, Kelleher C, Comer S, Sadlier D. Impact evaluation of an oral health intervention amongst primary school children in Ireland. *Health promotion international*. 2002 Jun;17(2):119-26
5. World health organization. Oral health fact sheet N0 318. April 2012. Available on: <http://www.who.int/mediacentre/factsheets/fs318/en/index.html>. Accessed 15 January 2013.
6. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. *Bull World Health Organ* 2005; 83:661-9.
7. Kwan SYL, Petersen PE, Pine CM, Borutta A. Health-promoting school; an opportunity for oral health promotion. *Bulletin of the World Health organization*. 2005; 83(9): 677-685. PubMed
8. Slade GD. Epidemiology of dental pain and dental caries among children and adolescents. *Community Dent Health*. 2001;18(4): 219-227. PubMed
9. Gathecha G, Makokha A, Wanzala P, Omolo J, Smith P. Dental caries and oral health practices among 12 year old children in Nairobi West and Mathira West Districts, Kenya. *Pan Afr Med J*. 2012; 12: 42-49. PubMed
10. S. Kuusela, E. Honkala, A. Rimpelä, S. Karvonen, M. Rimpelä Trends in toothbrushing frequency among Finnish adolescents between 1977 and 1995 *Community Dent Health*, 14 (1997), p. 84
11. J.H. Vermaire¹, J. Hoogstraten¹, C. Van Loveren², J.H.G. Poorterman¹, N.J.A. Van Exel Attitudes towards oral health among parents of 6-year-old children at risk of developing caries, *Commun Dent Oral Epidemiol*, 38 (2010), pp. 507-520
12. S. Kuusela, E. Honkala, A. Rimpelä, S. Karvonen, M. Rimpelä. Attitudes to oral health among adolescents with high caries risk, *Acta Odontol*, 65 (2007), pp. 206-213
13. Oliveira ER, Narendran S, Williamson D. Oral health knowledge, attitudes and preventive practices of third grade school children. *Pediatr Dent* 2000; 22:395-400.
14. Al-Omiri MK, Al-Wahadni AM, Saeed KN. Oral health attitudes, knowledge, and behavior among school children in North Jordan. *J Dent Educ* 2006;70:179-87
15. Smyth E, Caamano F, Fernández-Riveiro P. Oral health knowledge, attitudes and practice in 12-year-old schoolchildren. *Med Oral Patol Oral Cir Bucal* 2007; 12:E614-20.
16. Watt RG Strategies and approaches in oral disease prevention and health promotion. *Bull World Health Organ* 2005;83:711-8
17. Ahmed NA, Astrom AN, Skaug N, Peterson PE, Dental caries prevalence and risk factors among 12 year old school children from Baghdad, Iraq: a post-war survey. *Int Dent J*. 2007 Feb;57(1):36-44.
18. Oliveira ER, Narendran S, Williamson D. Oral health knowledge, attitudes and preventive practices of third grade school children. *Pediatr Dent* 2000; 22: 395_400.
19. Castilho AR, Mialhe FL, Barbosa Tde S, Puppim-Rontani RM. Influence of family environment on children's oral health: a systematic review. *J Pediatr (Rio J)* 2013; 89:116-123.
20. Siddibhavi MB, Ankola AV, Arora D, Singhal D, Singh D, Naik K. Oral Health Attitude and Awareness among School Children. *World J Sci Tech* 2011; 1: 43_51.
21. Al-Sadhan S. Dental caries prevalence among 12-14 year-old schoolchildren in Riyadh: A 14 year follow-up study of the oral health survey of Saudi Arabia phase I. *Saudi Dent J*. 2006; 18:2-7.
22. World Health Organization: Oral Health Fact Sheet No. 318 (2007)
23. Shingare P, Jogani V, Sevekar S, Patil S, Jha M (2012) Dental caries prevalence among 3-14 years old school children, urban, Raigad district, Maharashtra. *J Contemp Dent* 2:11-14