

## DENTAL CARE AMONG SECONDARY LEVEL STUDENTS

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### Abstract

This study entitled Dental care among secondly level students the study site of this study was Birendranagar municipality, Surkhet district. The main objectives of the study were to find out the knowledge on dental care, to find out existing practices on dental care and to assess dental problems of the respondents. This study was based on primary data as a descriptive type of research design and its nature was quantitative. All higher secondary schools' grade nine to ten students were population of the study. Altogether, 164 respondents were selected by the simple random sampling technique and lottery method. The primary data were collected through mainly interview schedule and observation sheet. After collecting data they were analyzed and interpreted in tables, charts and graphs using simple percentage.

The study found that 62.19 percent of the respondents had the knowledge on dental care; brushing teeth eat nutritious food and regular checkup. Most of them were received information through media. Only few 12.80 percent had knowledge about fluoride. All (100 percent) respondents have knowledge of brushing teeth. Among them, 79.26 percent respondents had knowledge of teeth brushing twice in a day and rest of 18.90 percent had knowledge once in a day. Most (82.92 percent) respondent had known affect of not brushing teeth. Similarly, 67.07 percent respondents had known cause of dental caries. Here, 73.17 percent respondents agreed that smoking, chewing tobacco and nut affect on teeth. The respondents, 85.97 percent said that eat nutritious food is significant for healthy teeth. The study found that 50.60 percent respondents had dental caries, 17 percent respondents had dental plaque, and 4.6 percent had double (*Dara*) teeth and only 1.21 percent had black color teeth. The knowledge respondent on dental care was good and the practice levels of the respondents on dental care were satisfactory. This study was conducted among secondary level students only. Such studies should be conducted among educated and uneducated males as well as females too in various parts of the country.

**Key Words :** Dental caries, Dental Cavity, Dental care, Dental plaque, Enamel, *Datiwan*, Fluoride

### Introduction

Dental care means brushing teeth with the proper technique at least two times a day (at morning after taking snack or meal and at night before sleeping); using fluoridated toothpaste and; a medium or soft toothbrush, rinsing mouth with water, eating nutritious food and getting regular checkups (BPOC, 2001). Dental care is a core part of the health care system. But today it is given less priority by the government. Our socio-cultural and economic status also has an effect on dental health. In our body, teeth work by crushing food and making it easy to swallow. Mainly, bacteria can enter through the mouth causing many diseases. Thus, healthy teeth can protect as well as prevent from many diseases. In Nepal, Nepalese people are now adapting day by day to Western culture, by eating readymade instead of restaurant or

homemade: Chapatti, Samosa, Pure, Vegetable, Gram, Egg, Fish, Meat, Curry, Soup and Salad. In todays, Fast foods such as, Biscuits, hotdogs, Choco pan, Chaw Chaw, Noodles, and Cheese balls are easily available. Adolescents also use tobacco products like chewing or sniffing or products like Gutka, Panbahar, Rajnigandha, and Doublemaja and they do not take care of their teeth. Increased consumption of sugar and its products cause dental caries in children as well as adolescents. Generally, drinking water in Nepal has a low fluoride content ( $p < 0.1$  ppm F), resulting; in little protection and prevention effects against caries. In Nepal people often clean their teeth with their fingers with ash or without ash, a tree stick or; tooth brush with toothpaste or; after wakening up in the morning. Over the last ten years, good quality tooth brushes for adults have become available. However, tooth brushes for children are hard to find (Westbacke, 2006).

Three decades ago, Primary Health Care (PHC) was developed but oral health was not integrated. Instead its focus was on curative measures, like pulling out teeth by the staffs rather than on oral health promotion and prevention, such as screening and advice of oral hygiene. Oral disease and dental caries are the most common diseases of childhood as well as adults. At present the prevention and treatment of oral disease are unavailable to the population outside of the Kathmandu valley. The Nepal government's; Ministry of Health and Population has made a plan of high quality, effective, basic oral health care to all of the people of Nepal. This includes the emphasis on promotive, preventive, curative and rehabilitative care. It has given emphasis on the development of human resources of oral health and development of appropriate curative care at all levels of the primary health care system. It is focused on development of national preventive and promotive strategies, development of public-private sector cooperation and a multi sectoral approach to the improvement of oral health. The causes of oral cancer and dental disease include Cigarette, Khaini, Supari, Gutka, Paan and Alcohol as well as deficiency of vitamin 'A', 'C', malnutrition and viral infections. Dental caries is the most expensive disease to treat in terms of direct costs. The estimated cost to treat a six year old child with three decayed teeth is approximately 800 NRs, not including loss of wages, travel and accommodation. This is enough money to sustain a family for a month. Many oral diseases in the advanced stages lead to pain and discomfort. According to a survey, 4,770 school children ages to 8-14 years have suffered from toothache. Due to this, children and parents suffered from physical, social, mental and financial problems. In Nepal 9.3 million Nepalese children need treatment in a year. According to the declaration of Alma Ata (WHO, 1978) essential health care, community participation in health services, focus on prevention, appropriate technology and multi sectoral approach. Like that the Ottawa Charter for Health promotion (WHO, 1986) focused on building public health policy, creating supporting environments, strengthening community action, and developing personnel skills (NOHP, 2001).

Essential health care services should address the most essential health needs of the population. They should be cost effective, focus on health promotion and disease; prevention and be based on primary health principles. This includes prevention of dental caries, periodontal diseases, fluoridation of toothpaste and salts, development of community oral

health education and reduction of consumption of tobacco and alcohol products. Oral health education integrates into the school curriculum (SLTHP, 1997-2017).

Subedi (2011) had consisted "Prevalence of Dental Caries in 5-6 Years and 12-13 Years Age Group of School Children of Kathmandu Valley" The study was shown conducted from December 2007 to May 2008. The age group of the school children of the study was divided into two groups 5-6 years and 12-13 years. A total of 638 students (325 of age group 12-13 age group and 313 age group 5-6 years) of the Kathmandu valley were included in the study. The cavities status was found higher in age group 5-6 years than in the 12-13 years.

Shrestha (2013) had mentioned in a study entitled "Dental disease in children" reveals that 75 percent of children under the age of 6-12 yrs have suffered from dental and oral problems. About 6-12 years age of children's all temporary teeth change into permanent teeth. To date only 1000 dental doctors and 700 dental hygienists are registered in the Nepal Medical Council and only 60 percent of them working in Nepal and provide service to all Nepalese.

Nepal is a developing country and Nepalese people generally have a lack of knowledge and awareness about dental care. The prevalence of dental caries is very high among primary level and secondary level school children. The school teachers are not conscious of oral health and dental care. Most of them do not wash their faces, rinse mouths and brush their teeth properly. The mouth is one of the entries of many pathogenic agents resulting in health hazards and unfortunately, hampering health.

Birendranagar Municipality is a beautiful valley covered by hills, surrounding village development committees are Gadhi in the south, Latikoili in the north, Lekhgaun in the west and Jarbutta in the west. Total population is 52,137 of which 27,221 (52.21 percent) are males and 24,916 (47.78 percent) are females. The total numbers of household are 12,045 with an average household size of 4.33 persons per house. The annual growth rate is 2.50. Literacy rate is 98.93 percent (BNMP, 2070).

Until now the Nepal government has not integrated dental care in health facilities. Only some private sectors initiate dental care hospital but there is not provision to provide preventive and promotive health services. Likewise, some NGOs, INGOs are working in this field taking limited programs but it is not enough. Dental problems affect on physical, mental, emotional and educational status of the students. The researcher could not find any study carried out on among secondary level students in Birendranagar municipality of Surkhet.

### **Objective**

The main objective of this study is to find out knowledge on dental care and existing practice and dental problems among secondary level school students of Birendranagar Municipality in Surkrhet district.

### **Method**

This chapter includes research design, population of the study, preparation of tools, data collection procedure and methods of data analysis and interpretation.

The study was based on descriptive type of research design and will be quantitative in nature. There were six higher secondary government schools in Birendranagar Municipality. All

these higher secondary government schools, nine to ten grade students were the population of this study. There were altogether 1,637 students studying in grade nine to ten.

The structured interview sheet included two parts. The first part was related knowledge on dental care; definition of dental care, source of knowledge, important of teeth cleaning and fluoride, dental caries. The second part was related to existing practice on dental care; tooth brushing technique, frequency, types of tooth brush and using fluoridated toothpaste. Similarly the observation sheet was included dental problems like dental caries, yellow color teeth, dental plaque, dental pocket, double teeth and gum bleeding.

### **Analysis and Interpretation**

This chapter mainly emphasizes on the analysis and interpretation of the data collection from the related respondents. All the interview schedules and observation sheets were checked and tabulated to make study clear and effective. In this study, collected data has converted into simple percentage and analyzed and interpreted descriptively.

### **Knowledge on Dental Care**

#### **Meaning of Dental Care**

According to respondent's meaning of dental care which was obtained from the respondents is shown in the given table.

Table 1

#### *Knowledge on Dental Care*

S.N.	Response	Total	Percent
1	Brushing teeth	53	32.31
2	Eat nutritious food	5	3.04
3	Regular dental checkup	4	2.43
4	Above all	102	62.19
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

Table 1 show that 32.31 percent of the respondents had knowledge about brushing teeth and 3.04 percent agreed eat nutritious food too. Only 2.43 percent had knowledge regular checkup. Although, most 62.19 percent of the respondents had knowledge about above three mentioned brushing teeth; eat nutritious food and regular dental checkup. It means that knowledge of the respondents on dental care was satisfactory.

#### **Source of Information**

There are different sources of media through which people can be obtained desire information. The respondents in the study area had got information through sources which are shown in table below.

Table 2

*Source of Information*

S.N.	Response	Total	Percent
1	Parent	54	32.92
2	Teacher	35	21.34
3	Friend	5	3.04
4	Radio/TV/Newspaper	70	42.68
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

From the table 2, majority of respondents 42.68 percent had got information about dental care from media and 32.92 percent of the respondents got information from their parents. Similarly, 21.34 percent respondent had go information from their teachers and 3.04 percent from friends. The total percentage has shown in the above table shows that, the maximum respondents were got information from media.

**Knowledge of Human Teeth**

In human temporary (Milk) teeth begin to appear 6-7 months of age and completed 2 years to 2.5 years. All temporary teeth begin to change in to the permanent teeth from 6-7 years of age and completed 10-12 years of age. There are 32 permanent teeth in human being and does not change remain whole life. The respondents were asked about human teeth and the responses are as follows.

Table 3

*Knowledge of Human Teeth*

S.N.	Response	Total	Percent
1	30	6	3.69
2	32	154	93.90
3	28	4	2.43
4	26	0	0
<b>Total</b>		<b>164</b>	<b>100.00</b>

The above table 3 shows that the majority of respondents 93.90 percent were known about permanent teeth are 32 in human. A few respondent, 3.69 and 2.43 percent had not know about it.

**Knowledge about Fluoride**

Fluoride is a kind of minerals which is useful to keep healthy teeth. The respondents were asked about to know about fluoride and respondents' answers are shown in the table below.

Table 4  
*Knowledge on Fluoride*

Descriptions	Total	Percent
Yes	21	12.80
No	143	87.19
<b>Total</b>	<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table shows that 12.80 percent had only knowledge about fluoride and rest of the 87.19 percent respondents is unknown to fluoride. Fluoride is one of the components naturally present in water.

#### Source of Fluoride

Fluoride is a mineral which is naturally found in soil, water, tea, sea food, fish and also to some extent it is found in all food materials. The respondents were asked about source fluoride and responses are given in the table.

Table 5  
*Source of Fluoride*

S.N.	Response	Total	Percent
1	Soil	5	23.80
2	Water	1	4.76
3	Food materials	10	47.61
4	Above all	5	24.80
<b>Total</b>		<b>21</b>	<b>100.00</b>

The above table 5 shows that 23.80 percent respondents believed fluoride is found in soil, 4.76 percent in water, 47.61 percent in food materials and the rest of the respondents (24.80 percent) believed that it is found soil, water and food. The main source of fluoride is water. The concentration of fluoride in drinking water is 0.5 to 0.8 ppm F. But only 4.76 percent respondent had knowledge about it.

#### Work of Fluoride

Fluoride helps to keep healthy teeth. It protect from dental disease and demineralization of tooth structure. The respondents were asked about how fluoride works and the result is as follows:

Table 6  
*Work of Fluoride*

S.N.	Response	Total	Percent
1.	Strong teeth	9	42.85
2.	Protect from dental disease	5	23.80
3.	Protect from demineralization	1	4.76
4.	Above all	6	28.57
<b>Total</b>		<b>21</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 6, shows that above 42.85 percent respondents agreed that fluoride makes teeth strong and another 23.80 and 4.26 percent answered that it protects from dental disease and demineralization of teeth respectively. 28.57 percent of respondents mentioned all three mentioned effects.

#### Fluoride contain in Toothpaste

According to Bajracharya (2064) Fluoride is one of the main ingredients of most toothpaste. Generally, 1000–1450 pp F, Sodium fluoride (NaF) or Sodium Monofluoro phosphate (Na<sub>2</sub>PO<sub>3</sub>F) should be contained in the toothpaste. And according to Basic Package of Oral Care (BPOC, 2001), high concentration of fluoride can cause fluorosis mottling affects, especially in children. Therefore, common toothpaste which is available in the market contains only 1000-1100 pp F.

Table 7

#### Fluoride contain in Toothpaste

S.N.	Response	Total	Percent
1	1000-1100 pp F	21	12.80
2	1200-1300 pp F	108	65.85
3	1300-1400 pp F	35	21.34
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table shows that 12.80 percent respondents had knowledge on fluoride integration in common toothpaste. 65.85 /21.34 percent respondents did not have sufficient knowledge about it. According to BPOC, ingestion of too much fluoride for a long time can cause dental fluorosis and there is not available separate toothpaste for children and adults. Therefore, In common toothpaste contains 1000-1100 ppF.

#### Cause of Dental Caries

Dental caries is the most prevalent chronic disease affecting human population around the world. Nepal has a morbidity of dental caries in all age groups. The cause of dental caries is shown in the table below.

Table 8

#### Cause of Dental Caries

S.N.	Cause of dental caries	Total	Percent
1	Eat sweets	40	24.39
2	Do not brush teeth	7	4.26
3	Do not eat rinse mouth after eat	7	4.26
4	Above all	110	67.07
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 8 shows that 24.39 percent respondent had answer eat sweet is a cause of dental caries. Another 4.26 and 4.6 percent respondent were agree with do not brush teeth and rinse mouth after eating. But the majority 67.07 percent of respondents had their view

above all three causes are the cause of dental caries. Increased consumption of sugar and its products, do not brushing teeth and rinsing mouth after eating are the major cause of dental caries in children as well as adults.

#### **Cause of Black Teeth**

It means teeth become change into black color than the normal color. The respondents were asked cause of black color teeth and answer is shown in the table given below.

Table 9

#### *Cause of Black Teeth*

<b>S.N.</b>	<b>Causes</b>	<b>Total</b>	<b>Percent</b>
1	Smoking	22	13.41
2	Chewing tobacco	21	12.80
3	Chewing nut	1	0.60
4	Above all	120	73.17
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 9 shows that majority 73.17 percent of respondents had known that smoking; chewing tobacco and nut are the cause of black color teeth. Day to day people has consumed tobacco and its products, results not only the effects on teeth but also it is injurious to health. Government has warned to the people not to take such materials.

#### **Affects of do not Eat Nutritious Food**

Nutritious food is very important to keep healthy teeth. Fresh fruits, green leaf, milk and its product egg contain minerals like fluoride, calcium and phosphorus which useful for teeth.

Table 10

#### *Affects of do not Eat Nutritious Food*

<b>S.N.</b>	<b>Affect</b>	<b>Total</b>	<b>Percent</b>
1	Dental disease	6	3.65
2	Weak teeth	10	6.09
3	Gum bleeding	7	2.26
4	Above all	141	85.97
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 10 shows that 85 percent respondents were known that nutritious or healthy food is good for teeth. And, unhealthy food bad affect on teeth. Almost all respondents have agreed about it. Nutritious food is essential for human body to keep healthy. Nutritious food contains needy minerals like calcium, zinc, florin etc. as well as vitamins like 'B','C', E, etc. and protein. All these materials keep healthy teeth.



### Existing Practice on Dental Care

#### Frequency of Brushing Teeth

Here the researcher identifies the existing practice of respondents related to dental care. In response to the researcher questions the respondents responded as follows.

Table 11

#### *Frequency of Brushing Teeth*

Frequency of brushing teeth	Total	Percent
Once daily	48	41.37
Twice daily	116	70.73
<b>Total</b>	<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 11 shows that 41.37 percent were brushing their teeth once in a day whereas majority 70.73 percent respondents were brushing their teeth twice in a day.

#### Time of Brushing Teeth

The respondents were asked about brushing teeth, in the morning after meal and at night before sleeping. The respondents' responded is showing below in table.

Table 12

#### *Time of Brushing Teeth*

Time of brushing teeth	Total	Percent
In the morning after meal	103	62.80
At night before sleeping	61	37.19
<b>Total</b>	<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 12 shows that 62.80 percent respondent was brushing teeth in the morning and 37.19 percent respondent at night before sleeping.

#### Used Toothbrush

The respondents were asked about type of used toothbrush and responds are shown in the table below.

Table 13

#### *Used Toothbrush*

S.N.	Used toothbrush	Total	Percent
1	Hard	0	0
2	Medium	125	76.21
3	Soft	39	23.78
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 13 shows that no one was used to hard toothbrush for brushing teeth. And 76.21 percent and 23.78 percent respondents were using medium and soft toothbrush.

**Use of Herbal Toothpaste / Non Herbal Tooth Paste**

Many people have used herbal toothpaste due to the attractive advertisement. Here, majority of respondents were using herbal toothpaste which is given the table below.

Table 14

*Use of Herbal / Non Herbal Tooth Paste*

<b>Use of herbal / non herbal toothpaste</b>	<b>Total</b>	<b>Percent</b>
Herbal	154	93.90
Non herbal	10	6.09
<b>Total</b>	<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 14 shows that 48.17 percent respondent were used herbal toothpaste and only 51.82 percent respondent were used nonherbal toothpaste

**Form of Product**

There are three forms of herbal products are available in the market and respondents were used product is given in the table.

Table 15

*Form of Product*

<b>Herbal products</b>	<b>Total</b>	<b>Percent</b>
Powder	18	11.68
Paste	109	70.77
Both	27	17.53
<b>Total</b>	<b>154</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 15 shows that 11.68 percent respondents were used powder form of herbal product, 70.77 percent respondent used paste and 17.53 percent used both powder and paste of herbal products.

**Teeth Clean with *Datiwan***

The respondents were used to clean teeth with *Datiwan* and the status *which* is shown in the table below.

Table 16

*Teeth Clean with *Datiwan**

<b>Teeth clean with <i>Datiwan</i></b>	<b>Total</b>	<b>Percent</b>
Yes	33	20.12
No	131	79.87
<b>Total</b>	<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

The above table 16 shows that 20.12 percent respondent had used *Datiwan* to clean teeth instead of toothbrush and rests of 79.87 percent respondents were use toothbrush.

## Dental Problems of Respondents

### Dental Problems

Researcher has found dental problems faced by the respondents. So, Researcher is directly observed dental problems of the respondents and the condition is shown below.

Table 17

#### *Dental Problems*

S.N.	Dental Problems	Total	Percent
1	Double teeth	7	4.26
2	Dental Plaque	15	9.14
3	Black or yellow teeth	2	1.21
4	Dental caries	36	21.95
<b>Total</b>		<b>164</b>	<b>100.00</b>

Source : Field Survey, 2023

Total 164 respondents were observed through observation sheet and found that dental caries 21.95 percent, dental plaque 9.14 percent, double teeth 6.60 percent and black color teeth 1.21 percent.

### Conclusion

This study entitled 'Dental care among secondary level students' was carried out Birendranagar Municipality of Surkhet district in order to find out the knowledge and practice on dental care and dental problem of the secondary level students. Simple random sampling method was applied for sample selection and the study population. The samples were selected by visiting every Higher Secondary School who was studying in grade nine to ten. The number of sample was selected 164. Interview schedule and observation were the main tools for the collection of data. Dental problems faced by the respondents were directly observed through the observation tools. After the data were collected, they were analyzed in different tables and figures using numerals and percentage and interpreted by the national norms. This study was based on descriptive type of research design and its nature was quantitative. In this study all of the respondents were agreed with need and importance of dental care. Knowledge on dental care and existing practices were concluded satisfactory. The study shows that existing dental care practice is affect on dental problems. In some cases was found dental problems as a cause in lacking proper dental care practices.

On the basis of the findings of the study the following conclusions are drawn. Among the total respondents, about sixty two percent had knowledge about dental caries. Likewise, most of the respondents had got dental care related information from media and only few from their friend. Fluoride is an essential for the protection and prevention of teeth from the dental disease but most eighty seven percent respondents had not known about it, only few had known its importance. Similarly, enamel is also main constituent of the tooth and only few thirty three percent were known and most sixty seven percent were unknown about its significant. All (hundred percent) had agreed teeth brushing. Majority of respondents had knowledge about frequency of teeth brushing like brushing teeth twice in a day but only few

perceived once in a day. They were aware about the use of toothbrush; hard, medium and soft. Fluoridated toothpaste is good for teeth however, most of respondents killed use of herbal toothpaste. But the entire respondent had agreed with need and importance of dental care.

The existing practice on dental care was found satisfactory. The teeth brushing practice was more than average twice in a day. Likewise, most of them had used medium and soft toothbrush and hard toothbrush did not use at all. Only twenty seven percent respondents had found spend two minutes time for teeth brushing and rest of the respondents more than five minutes i.e. malpractice. Majority of respondents had washed their toothbrush before use. Likewise, Most of them were changed their toothbrush within three months. Herbal products had not contained fluoride but most of them used to herbal products. Still, some of them practiced clean teeth with *Datiwan* and finger.

However, different dental problems faced by the respondents had found during the time of observation; more than fifty percent had dental caries, seventeen percent had dental plaque, four percent had double (*Dara*) teeth and one percent had black color teeth.

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